

the apparent absence of incremental striæ, which are only observable with a lens. On the base this similarity is at once lost through the small, almost microscopical umbilicus and its convex form. The species belongs to the section *Conulus* of Fitzinger, and may be described as follows:—



Hyalina layardi.

HYALINA (CONULUS) LAYARDI, sp. n.

Testa vix perforata, orbiculato-pyramidata, tenuis, superne sublente vix striatula, inferne distinctius striata, oleoso-nitens, corneo-lutea, sutura impressa; anfractus 5, convexiusculi; ultimus rotundatus, antice non descendens, subtus convexus; apertura verticalis; perist. simplex, marginibus callo tenui junctis, basali convexo, subexcavato columellari vix reflexiusculo.

Diom. maj. 5, min. 4½, axis 3 mm.

Hab. Vate Island, New Hebrides. Coll. E. L. Layard and J. H. Thomson.

6. On the Mollusca procured during the 'Lightning' and 'Porcupine' Expeditions, 1868-70. (Part IX.¹) By the late J. GWYN JEFFREYS, LL.D., F.R.S., F.Z.S.²

[Received January 13, 1885.]

(Plates IV., V., VI.)

GASTROPODA (*continued*).

Family XIX. IANTHINIDÆ.

1. IANTHINA EXIGUA, Bruguière, *Encycl. Méthod.* pl. 456. f. 2, *a, b*; Reeve, *Conch. Icon. Ianthina*, pl. v. f. 21, *a, b*: B. C. iv. p. 188.

¹ For Part I. see P. Z. S. 1878, p. 393; for Part II. see P. Z. S. 1879, p. 553; for Part III. see P. Z. S. 1881, p. 693; for Part IV. see P. Z. S. 1881, p. 922; for Part V. see P. Z. S. 1882, p. 656; for Part VI. see P. Z. S. 1883, p. 87; for Part VII. see P. Z. S. 1884, p. 111; and for Part VIII. see P. Z. S. 1884, p. 341.

² [Dr. Jeffreys died suddenly on January 24, 1885, four days after the reading of his paper at the Society's Meeting. By the request of his family I have undertaken to see my much lamented friend's manuscript through the press, but I would wish it to be understood that I do not therefore subscribe to the views and determinations given therein.—EDGAR A. SMITH.]

'Porcupine' Exp. 1870: Atl. St. 3, 6, 13, 16, 17, 17a, 22, 24, 25, 27, 28, 28a; Med. 55.

Distribution. Almost everywhere throughout the Atlantic and Pacific, but especially in the southern parts of those oceans. All the species of this remarkable genus are "waifs and strays," and have no local or fixed place of abode. Like the Heteropods and Pteropods, they inhabit the surface of the sea; and being entirely at the mercy of the wind and waves, they are drifted hither and thither and are occasionally thrown ashore as far north as Caithness and Donegal on our own coasts, but not further northwards.

I am not aware that any species of *Ianthina* has been recorded as fossil. Did the Equatorial or any similar marine current exist in the Pliocene or previous periods?

The apex of the present and other species is styliform, and apparently rudimentary or adapted to the embryonic stage of the animal. I may observe that although the food of the *Ianthina* is well known (see 'British Conchology,' vol. iv. p. 182), M. Henri Drouet, in his treatise on the 'Mollusques marins des Iles Açores,' seems to have considered it herbivorous, when he mentions having often seen it floating in a reversed position, "en attendant sans doute la rencontre de quelque plante." Tasli graphically described its occurrence on the shores of Brittany, "où quelquefois elles dessinent un ruban du plus beau bleu de plusieurs kilomètres de longueur." With respect to the animal of *Ianthina*, d'Orbigny says, in his work on the Mollusca of the Canary Isles collected by Webb and Berthelot, "Cette bouche est munie latéralement de tentacules coniques portant les yeux à leur base externe." The Messrs. Adams state as to all the members of this family, "Tentacles short and obtuse, with pointed eye-pedicels at their bases, but without any trace of eyes;" and they describe the *Ianthinidæ* as "blind." It is scarcely creditable that this simple question should not have been long ago determined and set at rest.

2. IANTHINA ROTUNDATA, Dillwyn.

I. rotundata (Leach, MS.), Dillw. Contrib. towards a History of Swansea (1840), p. 59: B. C. iv. p. 186, frontispiece and pl. iii. f. 1; v. p. 214, pl. lxxvii. f. 1.

'Porcupine' Exp. 1869: St. 47. 1870: Atl. 16 (fragments).

Distribution. British seas as well as the north-west of France, and Arcachon. Living specimens with the float attached were found by me more than half a century ago in Oxwich Bay near Swansea, by Miss Hockin at Hayle in Cornwall, and by the late Dr. Battersby in the west of Ireland. Shells of *I. communis* have also been found on our western coasts. Both of these species have several synonyms; but as one of the objects of the present work is to serve as a further Supplement to 'British Conchology,' I will not repeat any of the synonyms which I have already given for our native Mollusca.

Family XX. NATICIDÆ.

A. Operculum chitinous or horny. *Natica*, Risso.

1. *NATICA SORDIDA*, Phil. Moll. Sic. ii. p. 139, t. xxiv. f. 15 : B. C. iv. p. 218 ; v. p. 215, pl. lxxviii. f. 3.

'Porcupine' Exp. 1869 : St. 1, Dingle B., 6, 7, 9, 11, 13-16, 23, 45, 45a. 1870 : Atl. 2, 3, 3a, 9-11, 13, Setubal B., 24, off C. Sagres, 26-30, 36 ; Med. C. de Gata, 45, 50, off Jijeli, 55, Benzert Road, Rasel Amoush, off Rinaldo's Chair, Adventure Bank.

Distribution. British coasts from Shetland to Devon, Denmark, Ostend? (*Malzine*), Bay of Biscay, N. Spain, S.W. France, throughout the Mediterranean and Adriatic, and off Madeira ; 7-488 fms.

Fossil. Pliocene : Red and Coralline Crags, St. Erth, Cornwall, Middle and South of Italy. Post-tertiary : Caithness, Lancashire, and Cheshire.

Synonyms numerous. Judging from De Blainville's short description of *N. fusca* in the 'Dictionnaire des Sciences Naturelles,' I suspect that it was a reddish-brown and uniformly coloured variety of *N. millepunctata*. The present species may have been *N. livida* of Laskey, or possibly the problematical *N. castanea* of Lamarck, which has been assigned to so many French species. Deshayes considered Lamarck's species to be a variety of his *N. monilifera*, our *N. catena*. On the whole it may be better to retain the well-known name of *sordida*, instead of wearying conchologists by a further and perplexed discussion as to the priority and appropriateness of the several other names which have been bestowed by different writers on this rather common and extensively distributed species. The *N. sordida* of Swainson appears to have been *N. plumbea* of Lamarck.

2. *NATICA PALLIDA*, Broderip and Sowerby.

N. pallida, Brod. & Sow. in Zool. Journ. vol. iv. (1828-29), p. 372.

N. grœnlandica, B. C. iv. p. 216 ; v. p. 215, pl. lxxviii. f. 2.

'Porcupine' Exp. 1869 ; St. 14, 45, 58.

Distribution. Arctic seas in both hemispheres, Iceland, Faroe I., Scandinavia, Great Britain southwards to the Dogger Bank, Labrador, Canada, and New England, N. Japan, ? Ostend (*Malzine*) ; 2-1290 fms.

Fossil. Pliocene? and Post-tertiary : Red and Norwich Crags, Siberia (*Schmidt*), Iceland (*Mörck*), Norway and Sweden, British Isles, Labrador, Canada and New England ; 0-400 ft.

Synonyms. *N. pusilla*, Gould (not Say), *N. livida*, Bean, *N. borealis* and perhaps *N. suturalis*, Gray, *N. grœnlandica* (Beck), Möller, probably *N. beverlii*, Leach, *N. gouldii*, Philippi, *N. alba* and *N. lactea* (Lovén MS.), Philippi, and *N. bulbosa*, Reeve. I have given this long list of names to show the confusion and difficulty which is so apt to perplex students when trusting to certain works. Philippi has, in Küster's edition of the 'Conchylien Cabinet,' mistaken, as well as Forbes and Hanley, the present

species for *N. pusilla* of Say, which has a calcareous operculum. I was at one time inclined to doubt whether *N. pallida* of Broderip and Sowerby might not be *N. islandica*; but I have now satisfied myself, by the further examination of numerous specimens from the North Atlantic and Pacific oceans, that *N. grænlandica* is sufficiently represented by their description although short, which is as follows:—

“*Natica pallida*. *N.* testâ subglobosâ, albidâ, tenui, apice breviter acuminato, eroso; anfractibus rotundatis, margine elevatiusculo, suturâ distinctâ; umbilico parvo; long. $1\frac{3}{20}$, lat. 1 poll.

Hab. in Oceano Arctico.” From Icy Cape.

Specimens from the arctic seas are much larger than those from the Dogger Bank.

3. NATICA MACILENTA, Philippi.

N. macilenta, Phil. Moll. Sic. ii. p. 140, t. xxiv. f. 14.

‘Porcupine’ Exp. 1870: Med. St. Algesiras B., Capo de Gata, 50, 55, G. Bona, Benzert Road, Rasel Amoush, G. Tunis, Adventure Bank (and var. *alba*).

Distribution. Throughout the Mediterranean and Adriatic, Mogador (*McAndrew*)!

Fossil. Pliocene: Biot, Italy, and Rhodes.

Probably *N. pulchella* of Risso; but his descriptions are very insufficient to identify any species. The present species comes near *N. guillemini* of Payraudeau, and may be a variety of it: the latter differs only in its less oval shape and being of a larger size. *N. nizza* of Philippi appears to be a variety of his *N. macilenta*. If all these species are the same Payraudeau’s name has priority over both of Philippi’s species, although it is posterior to that of Risso.

4. NATICA GLAUCINA, Linné.

N. glaucina, L. Fauna Suecica, ed. 2, p. 533, no. 2197.

N. alderi, B. C. iv. p. 224; v. p. 215, pl. lxxviii. f. 5.

‘Porcupine’ Exp. 1869: St. 1, 2, 3, 12, 14, 17, 18, 23 *a* (and var. *lactea*), L. Swilly, L. Foyle, 33, 35, off Lerwick. 1870: Atl. Vigo B., Tangier B.; Med. Algesiras B., Benzert Road.

Distribution. Loffoden I. to the Mediterranean and Adriatic: 2–310 fms.

Fossil. Pliocene: Red Crag, Tuscany, Calabria. Post-tertiary: Scandinavia, British Isles, and Messina.

As a mere act of justice to the illustrious Swede, I feel myself compelled to substitute for *alderi* the specific name *glaucina*, by which he originally and undoubtedly designated and so fully described this common European shell in his ‘Fauna Suecica,’ and which he afterwards countersigned or sufficiently indicated in the twelfth edition of the ‘Systema Naturæ.’ When I was tempted to adopt the name given by Professor Forbes in honour of Mr. Alder (both of them my old and lost friends!), I was misled by the long and perplexing discussion of the Linnæan species in Mr. Hanley’s

work. Reeve followed Forbes and Hanley and older British authors in referring the present species to *N. nitida* of Donovan (a West-Indian shell); but he described and figured under that name and as our species *N. guillemini* of Payraudeau. His errors of nomenclature are very bewildering.

5. *NATICA INTRICATA*, DONOVAN.

N. intricata, Don. Brit. Shells, v. t. 167; Hidalgo, Moll. mar. Esp. lam. 20A. f. 8-10, 9 (opt.).

'Porcupine' Exp. 1870: Tangier B.

Distribution. Portugal and Azores (*McAndrew*), throughout the Mediterranean and Adriatic; 2-120 fms.

Fossil. Pliocene: Tuscany, Monte Mario, Calabria, Sicily, and (?) Rhodes. Post-tertiary: Militello, in tufo balsatico (*Philippi*).

This is (partly) *Nerita canrena* of Liuccé, *Natica marmorata*, Risso, *N. valenciennesi*, Payraudeau.

6. *NATICA MONTACUTI*, (*montagui*) FORBES.

N. montagui, Forb. Mal. Mon. p. 32, pl. ii. f. 3, 4.

N. montacuti, B. C. iv. p. 227; v. p. 215, pl. lxxviii. f. 6.

'Lightning' Exp.: St. 5, 6, 7.

'Porcupine' Exp. 1869: 1, 2, 3, 6, 9, 13, 14, 23a, 25, 36, 41, 47, 68, 70, 89, Little Minch. 1870: Atl. (var. *minor*), 3, 3a, 9, 30; Med. C. de Gata, Adventure Bank.

Distribution. Iceland, Finmark to Guernsey, Belgium (*Malzine*); 5-570 fms.

Fossil. Post-tertiary: Christiania and Bohuslän, Hebrides, Bridlington, Calabria, Sicily, and Rhodes.

7. *NATICA NOTABILIS*¹, JEFFREYS. (Plate IV. figs. 1, 1 a.)

SHELL globosely fusiform (being pointed at the apex and base), thick, opaque, rather glossy: *sculpture*, none except irregular lines of growth: *colour* yellowish-white, with three equidistant bands on the body-whorl, composed of reddish-brown streaks, which are close-set and obliquely arranged; one of these bands encircles the middle and is broader than the others, the upper one lies just below the suture, and the third or lowermost is placed below the periphery; there is also a small blotch of the same colour above the umbilical pad: *spire* short, but prominent and pointed: *whorls* 5, convex, compressed at the top; the last occupies $\frac{8}{10}$ of the spire: *suture* slight, but distinct, not channelled: *mouth* semilunar, equal in length to $\frac{4}{5}$ of the spire: *outer lip* thin, curved but not inflected at the top: *inner lip* narrowly spread on the upper part and thickened at the base: *umbilicus* contracted by a thick but small pad, so as to form a crescentic groove: *operculum* chitinous, ear-shaped, horn-colour, indistinctly striated in the line of growth, and having a small lateral spire of three whorls, defined by an overlapping and raised edge. L. 0.4, B. 0.35.

¹ Remarkable.

'Porcupine' Exp. 1870: Atl. St. C. Sagres. A single but living specimen.

This pretty species resembles in the coloured bands the well-known *N. triseriata* of Say; but the whorls are not so ventricose in the present species, the spire is more pointed, and the umbilicus differs in having a small semicircular pad covering more than half of it. The suture in the present species is not excavated as in *N. montacuti*, and the spire is shorter and also more pointed. It differs from *N. macilenta* and its probable variety *N. rizzæ*, in shape, consistence, colour, and umbilicus.

Professor G. O. Sars¹ has very kindly examined for me the odontophores of the present species and *N. triseriata*. He finds that the conchological difference of the two species is also well marked in the structure of their respective radulæ. "The middle plate is especially different. In *N. notabilis* the middle tooth is unusually small, and by no means equals the size of the lateral teeth. In *N. triseriata* the middle plate is rather large and has the middle tooth much larger and more prominent than the lateral teeth. The shape of the plate in each is also different. Moreover the jaws in *N. notabilis* appear to be much coarser in structure, and the whole radula is also comparatively longer. In both species the inner uncinus exhibits the secondary tooth characteristic of the genus (or subgenus) *Lunatia*."

8. NATICA SUBPLICATA¹, Jeffreys. (Plate IV. figs. 2, 2 a.)

SHELL globular or inclined to oval, rather thick, opaque, and glossy: *sculpture*, numerous but short and irregular, oblique, longitudinal puckers or wrinkles below the suture of the body-whorl, and the rest of the shell is slightly striated in the same direction; *colour* ivory-white: *spire* short, apex pointed: *whorls* 5, tumid; the last occupies $\frac{7}{8}$ of the spire in length: *suture* deepish: *mouth* triangularly oval, pointed above and rounded below, equal in length to $\frac{3}{4}$ of the spire: *outer lip* gently curved and thick-edged: *inner lip* forming a narrow and nearly even glaze over the whole of the pillar: *umbilicus* small, ending below in a broadish groove: *operculum* horny, yellowish. L. 0·4, B. 0·35.

'Porcupine' Exp. 1870: St. 1, 2, 3, 9, 13, 17a, C. Espichel, 22, 26, 30.

Distribution. Bay of Biscay ('Travailleur' Exp.), off C. Verd I. ('Talisman' Exp.); 370–1192 fms.

Differs from other species now described or noticed in respect of the peculiar folds below the suture.

9. NATICA ANGULATA², Jeffreys. (Plate IV. fig. 3.)

SHELL solid, with a flattened spire and a sharp angular keel on the periphery; whorls 2–3; suture deep; umbilicus small. L. 0·05, B. 0·075.

'Porcupine' Exp. 1869: St. 4. 1870: Atl. 30; Med. 55.

All the specimens are very small; but I cannot identify them

¹ Plicated underneath the suture.

² Angular.

with the young of any other species known to me, and I have therefore named and characterized this species provisionally.

10. *NATICA GLOBOSA*¹, Jeffreys. (Plate IV. figs. 4, 4 a.)

SHELL globular, thin and fragile, semitransparent, and glossy: *sculpture*, only some slight and close-set spiral striæ which may be seen under a microscope: *colour* white with a faint tinge of yellowish-brown: *spire* short and pointed: *whorls* 4, tumid and compact; the largest occupies $\frac{3}{4}$ of the spire: *suture* rather deep: *mouth* oval, somewhat expanded, contracted and angular above, rounded below: *outer lip* nearly semicircular, thin-edged: *inner lip* narrow, flexuous, attached above to the pillar, and folded over the *umbilicus*, which consists of a narrow slit. L. 0.1, B. 0.075.

'Porcupine' Exp. 1870: Atl. St. 16, 17 a; Med. 55.

Distribution. Marocco and C. Verd I. ('Talisman' Exp.); 1192-1980 fms.

B. Umbilicus more or less covered by a callus.

Neverita, Risso.

11. *NATICA COMPACTA*², Jeffreys. (Plate IV. figs. 5, 5 a.)

SHELL globular, thick, opaque, somewhat glossy: *sculpture*, a few microscopical spiral striæ, which are chiefly perceptible on the base: *colour* light yellowish-brown: *spire* short, turreted; apex blunt: *whorls* 4, convex, rapidly enlarging, shouldered below the suture; the last occupies $\frac{3}{4}$ of the spire: *suture* wide, slightly channelled: *mouth* oval, equal in length to $\frac{2}{3}$ of the spire: *outer lip* inflected above: *inner lip* thickened on the pillar and at the base, not forming a pad as in many of the other species: *umbilicus* concealed or closed by the inner lip. L. 0.35, B. 0.3.

'Lightning' Exp.: St. 7.

'Porcupine' Exp. 1869: 23, 23 a, 30. 1870: Atl. 16, 17, 17 a.

Differs from *N. montacuti* in having a turreted spire, and especially in the closed umbilicus. The very young are shaped like the adult, but the umbilicus is open and free in consequence of the inner lip not having been yet formed and spread over the pillar.

12. *NATICA OBTUSA*³, Jeffreys. (Plate IV. figs. 6, 6 a.)

SHELL oval, with an oblique outline, rather thick, opaque, and glossy in the living state: *sculpture*, slight and curved striæ in the line of growth, which are stronger below the suture in each whorl: *colour* whitish: *spire* short, apex very blunt: *whorls* 4, somewhat compressed, but not flattened; the last occupies $\frac{7}{8}$ of the spire: *suture* slight and shallow: *mouth* oval, acutely angulated above: *outer lip* thick-edged: *inner lip* thickened in the only adult specimen, and completely covering the umbilicus, which is partly visible in a half-grown specimen. L. 0.3, B. 0.3.

'Porcupine' Exp. 1870: Atl. St. 16, 17.

¹ Globular.

² Compact together.

³ Blunt.

Two dead specimens, one larger than the other, and apparently full-grown.

Closely resembling in the shape and spire *N. immaculata* of Totten, a native of the eastern coasts of North America; but in that species the umbilicus is open and exposed. Query as to the scientific value of this character, except in adult specimens?

13. NATICA NANA, Möller.

N. nana, Möll. Ind. Moll. Grönl. p. 7.

Lunatia nana, G. O. Sars, Moll. reg. arct. Norv. p. 159, t. 21. f. 16, a, b.

'Porcupine' Exp. 1869: St. The Minch. Two dead specimens.

Distribution. Spitzbergen (*Torell* and 'Vöringen' Exp.), Vadsö, (*G. O. Sars*), Greenland (*Möller*), New England (*Verrill*), G. St. Lawrence (*Whiteaves*), Aleutian I. (*Dall*); 10-430 fms.

Specimens from Spitzbergen and Greenland differ as to the relative height or prominence of the spire; but the inner lip and umbilical pad seem to offer constant characters.

14. NATICA JOSEPHINIA, Risso.

Neverita josephinia, Risso, Eur. mér. p. 149. f. 43 (1826).

'Porcupine' Exp. 1870: Med. St. 50, 55, Benzert Road, Adventure Bank.

Distribution. Cadiz (*Paz, f. Hidalgo*), and throughout the Mediterranean and Adriatic; 4-10 fms.

Fossil. Miocene, Pliocene, and Post-tertiary: from Belgium to Sicily and the Morea, Rhodes and Cyprus.

Natica olla of Marcel de Serres, 1829.

The young of this, as well as of the next species, has its peculiar and characteristic inner lip or callus.

C. Operculum calcareous. *Nacca*, Risso.

15. NATICA OPERCULATA¹, Jeffreys. (Plate IV. figs. 7, 7 a.)

SHELL globular, thick, opaque, glossy: *sculpture*, merely lines of growth: *colour* white with a tinge of yellow: *spire* short; apex blunt and flattened: *whorls* 4-5, convex, the last occupies $\frac{5}{6}$ of the spire: *suture* slight, but wide in consequence of the upper part of each whorl being compressed and shouldered: *mouth* oval: *outer lip* thick-edged, somewhat expanding, extending beyond the upper opening of the mouth, and angulated in that part, round below: *inner lip* completely lining the base, and forming in the middle a semicircular pad, which is separated and defined by a narrow furrow or groove: *umbilicus* rather concave unless where it is closed near the pillar by the pad. L. 0.3, B. 0.275. A fragment of one specimen indicates a somewhat larger size.

¹ Covered with a lid.

'Porcupine' Exp. 1870: Atl. St. 24, 27, 28, 28 *a*, 30; Med. Adventure Bank.

Distribution. North Japan (*St. John*)!

This species may be known by the flattened apex and the remarkable semicircular pad on the umbilicus, which is proportionally much smaller than in *N. josephinia*. It is possible, however, that the present species may be a southern, and therefore a smaller, form or variety of *N. affinis*. The operculum in the Japanese specimens is calcareous. It is also possible that my *N. spheroides* from the 'Valorous' Expedition (1750 fathoms) may be the young of the present species.

16. NATICA AFFINIS, Gmelin.

Nerita affinis, Gmel. ed. L. S. N. p. 3675 (ex Müll. Zool. Dan. Prodr. no. 2956).

Natica affinis, B. C. iv. p. 229; v. p. 215, pl. cii. f. 3; G. O. Sars, Moll. reg. arct. Norv. p. 159, t. 21. f. 14 *a*, 14 *b*.

'Lightning' Exp. St. 5.

'Porcupine' Exp. 1869: St. 39, 65, 89.

Distribution. Circumpolar and arctic seas in the Atlantic and the Pacific, Iceland, Faroe Isles, between the Hebrides and Faroes, Norway, Labrador, Gulf of St. Lawrence, New England, Siberia, Sea of Okhotsk, Aleutian I. (*Dall*), North Japan (*v. Schrenck and Lindholm*); 1-1255 fms.

Fossil. Pliocene: Red Crag (*S. V. Wood*). Post-tertiary: Glacial beds in Greenland, Siberia, Iceland, Scandinavia, British Isles, Palermo (*Dr. van Geuns*), Russia, and N. America; 0-1360 ft. The difference of level in Great Britain extends to 1840 ft., viz. from the Shetland sea-bed, 480 ft., to Moel Tryfaen, 1360 ft.

Synonyms. *N. clausa*, Broderip and Sowerby; *N. septentrionalis* (Beck), Möller; and as a variety, *N. oclusa* of S. V. Wood and *N. russa* of Stimpson. Prof. G. O. Sars considers *N. affinis* and *N. clausa* distinct species, chiefly because of a difference in size and in the radula. But in his figure of the larger form, which he names *clausa* (t. 21. f. 12 *b*), the umbilicus is shown as quite open and without any callosity. It has been said that even the good Homer occasionally becomes sleepy! The present species is not *N. affinis* of Von d. Busch.

The animals or soft parts of the typical form and the variety *occlusa* or *russa* were described by me in my notices of the 'Valorous' Expedition. A specimen of the former is an inch and three tenths long, and nearly as broad. As to the greater size of Invertebrata from Arctic seas, Mr. Norman remarks, in his "Notes on the Oceanic Copepoda from Nares's Arctic Voyage:"—"With respect to size, we find here, as in so many other instances among the Invertebrata, an extraordinary development of the Arctic specimens, which are at least *six times* the size of those from the Irish coast, and measure five millimetres in length, exclusive of the antennæ."

17. *NATICA FLAMMULATA*, Requier.

N. flammulata, Req. Cat. Coq. Corse (1848), p. 61.

N. sagraiana, Hidalgo, Mol. mar. de Esp. lam. 26 A. f. 5-7 (opt.).

'Porcupine' Exp. 1870 : Atl. St. off C. Sagres, Tangier B.; Med. Cartagena B., 50, 50 a, Benzert Road, Rasel Amoush, Adventure Bank.

Distribution. Gulf of Gascony, Cadiz, throughout the Mediterranean, Cuba, Madeira and Canaries; 20-120 fms.

Fossil. Pliocene: Calabria and Sicily.

N. filosa, Philippi (1852), but not of Reeve, *N. sagraiana*, d'Orbigny (1854), and perhaps *Nacca fulminea* of Risso, but not *Nerita fulminea* of Gmelin.

The specific name ought strictly to be *flammula* or *flammeola*, instead of *flammulata*, which is not a Latin word.

18. *NATICA MARMORATA*, H. Adams.

N. marmorata, H. Adams, in Proc. Zool. Soc. 1869, p. 274, pl. xix. f. 8.

N. prietoi, Hidalgo, Mol. mar. de Esp. lam. 20 B. f. 2, 3 (opt.).

'Porcupine' Exp. 1870 : Med. St. Cartagena B.

Distribution. Algiers (*Weinkauff*), Minorca (*Hidalgo*), Palermo (*Monterosato*), Adventure Bank ('Shearwater' Exp.); 16-120 fms. Canary I. (*McAndrew*); 30-120 fms.

Not *Nacca marmorata* of Risso, which appears, from the description, to be *Natica imbricata*.

The sculpture of the Mediterranean shell is somewhat different from that in Mr. Adams's description. Instead of being very finely and obliquely striated (or whatever may be meant by "striatula"), the surface is microscopically but irregularly reticulated. It differs from *N. flammulata* in the peculiar colouring of the shell, and the shape of the umbilical callus. The operculum is calcareous in a specimen which was kindly given me by my late friend Mr. McAndrew. I have already, in my work on British Conchology, endeavoured to give this excellent naturalist ample but fully-deserved credit for his long and persistent labours in exploring so many parts of the North Atlantic for the furtherance of our common science; and I would avail myself of the present opportunity to renew my grateful testimony. But the field of submarine researches has been, since his death, so greatly extended with respect to depth, that the result of his numerous dredgings in comparatively shallow water, although they were most useful, will become of less importance in considering the difficult problem of geographical distribution. See, for instance, the important paper of Dr. Fischer in the 'Comptes Rendus' for 1883, on some of the results of the last French Expedition, and the valuable communications of Professor Verrill to the Academy of Sciences at Cincinnati on the progress of the continued operations of the United States for similar objects.

This is *N. prietoi* of Hidalgo, ex typo.

19. NATICA DILLWYNI, (*dillwynii*) Payraudeau.

N. dillwynii, Payr. Moll. Corse, p. 120, t. v. f. 27, 28.

N. dillwynii, Hidalgo, Mol. mar. de Esp. lam. 20 c. f. 8, 9 (opt.).

'Porcupine' Exp. 1870: Med. St. G. Tunis (young).

Distribution. Throughout the Mediterranean and Adriatic, Jamaica (*C. B. Adams*, as *N. proxima*, in coll. McAndrew): var. *fusca*, of a dark hue, Corsica (*Susini*); var. *avellana*, nut-brown, Algiers (*Weinkauff*, af. typ.); 20-120 fms.

Fossil. Miocene: Calabria (*Seguenza*). Pliocene: Pezzo (*Philippi*).

N. avellana of Philippi is the nut-brown variety.

20. NATICA VITTATA, Gmelin.

Nerita vittata, Gm. ed. L. S. N. p. 3674.

Natica intricatoides, Hidalgo, Mol. mar. de Esp. lam. 20 b. f. 12, 13, lam. 20 c. f. 10, 11 (opt.).

'Porcupine' Exp. 1870: Atl. St. C. Espichel.

Distribution. Marocco (*Chemnitz*), Algiers (*Weinkauff*, *Joly*), Cadiz, Algeiras and Malaga (*Hidalgo*).

I quite agree with Herr Weinkauff that this is Gmelin's species, which was founded on the description and figures of Chemnitz, Conch. Cab. v. p. 271, t. 188. f. 1917, 1918. It is *Natica textilis* of Reeve, and *N. intricatoides* of Hidalgo ex typo.

Resembles *N. intricata* in shape; but the present species is much larger and more globular, the colouring is darker, the whorls are more convex, and the suture is consequently deeper, the spire is more produced, and the umbilicus has a sharp ridge in the middle, and a single (instead of double) groove below the ridge. According to Reeve, Mr. Cuming's specimen has a calcareous operculum; no habitat was given for it.

21. NATICA STERCUS-MUSCARUM, Gmelin.

Nerita stercus muscarum, Gmel. ed. L. S. N. (1788) p. 3673.

Natica hebræa, Hidalgo, Mol. mar. de Esp. lam. 20. f. 5-8 (opt.).

'Porcupine' Exp. 1870: Med. St. C. de Gata, Benzert Road, Adventure Bank.

Distribution. Quimper (*de Kermovan*, f. *Collard des Cherres*)?, throughout the European, African, and Asiatic coasts of the Mediterranean, Adriatic, and Canaries; 5-120 fms.

Fossil. Miocene: Vienna Basin and the Continent of Europe. Pliocene: Coralline Crag (as *N. multipunctata* of S. Wood), Belgian Crag, South of France, Italy, and Algeria. Post-tertiary: Morea, Rhodes, Corinth, and Cyprus.

Weinkauff has noted 14 synonyms. Martyn's specific name *hebræa* is four years older than that of Gmelin; but, as Von Martens and Weinkauff have pointed out, Martyn's nomenclature is not in accordance with the Linnean system. Lamarck's name *millepunctata* has been used by many conchologists, although it must be borne in mind that the only habitats which he gave (the

Indian Ocean and the coast of Madagascar) are certainly not applicable to this common Mediterranean species. Weinkauff regards the typical form (his *millepunctata*) and *N. hebræa* as different species. Karsten's name *punctata*, which was adopted by Risso without acknowledgment, or through coincidence, is ten years subsequent to Gmelin's.

Family XXI. NERITIDÆ.

NERITINA VIRIDIS, Linné.

Nerita viridis, L. S. N. p. 1254; Chemnitz, Conch.-Cab. ix. t. 124. f. 1089.

'Porcupine' Exp. 1870: Med. St. Algeiras B.

Distribution. Mediterranean from the south of France to the coast of Syria, Adriatic, Madeira, Canaries, West Indies, and Martinique; 3-120 fms. It is an inhabitant of shallow water.

Fossil. Post-tertiary: Palermo (*Philippi*).

Varies in the intensity of colour as well as in the markings.

Family XXII. SOLARIIDÆ.

1. SOLARIUM PSEUDOPERSPECTIVUM, Brocchi.

Trochus pseudoperspectivus, Brocchi, Foss. Subap. ii. p. 359, t. v. f. 18.

Solarium discus, Philippi, Moll. Sic. ii. p. 225, t. xxviii. f. 12; Conch.-Cab. (ed. Küster), *Solarium*, p. 29, t. 4. f. 9.

'Porcupine' Exp. 1870: Med. St. 50, 51, Benzert Road, Rasel Amoush, Adventure Bank.

Distribution. Bay of Biscay ('Travailleur' Exp.), throughout the Mediterranean, Alexandria (*Lamarck*, as *S. perspectivum*), Barbary (*Ponsonby*), Canary I. (*McAndrew*); 40-108 fms.

Fossil. Miocene: Vienna Basin, Perpignan, and Calabria. Pliocene: (?) Biot near Antibes, Italy, Sicily, and Algeria. Post-tertiary: Selsea, Morca.

Owing to the variability of the shell, especially in the fossil state, the synonyms are rather numerous. I regard *S. simplex* of Bronn, *S. lyellii* of Michelotti, *S. discus* of Philippi, *S. sulcatum* of O. G. Costa (not of Lamarck), *S. pulchellum* of Tiberi (not of Michelotti), *S. perspectiforme* also of Tiberi, *S. mediterraneum* of Monterosato, probably *S. nuperrimum* of Brugnone, and perhaps *S. contextum* of Seguenza, as varieties of the present species. The number of concentric ridges or striæ, as well as the height of the spire, and consequent contraction of the umbilicus, differ in specimens from distant localities.

The lowest part or deepest interior of the umbilicus, which represents the obverse of the spire, is flattened, and has the whorls reversed or sinistral. Monterosato has described the animal in the 'Journal de Conchyliologie' for 1874.

2. SOLARIUM CAROCOLLATUM, Lamarck.

S. carocollatum, Lam. An. s. Vert. vii. p. 6.

S. moniliferum (Bronn), Monterosato, Notizie int. Sol. Med. f. 5, 6, 7.

'Porcupine' Exp. 1870: Atl. St. 6, 8, 9, 25-30; Med. C. de Gata, 50, Adventure Bank.

Distribution. Both sides of the Mediterranean, and off the Azores ('Josephine' Exp.): 40-600 fms.

Fossil. Miocene: Vienna Basin, Marseilles, and St. Domingo (Hörnes), Dax and Léognan (Basterot). Pliocene: (?) Biot, Northern and Central Italy, and Sicily.

S. moniliferum, Bronn, *S. affine*, Cantraine (not of Sowerby), and *S. alleryi*, Seguenza.

The same remarks as to the sculpture, spire, and umbilicus are applicable to this as well as to the last species.

Operculum imbricate. *Torinia*, Gray.

3. SOLARIUM SICULUM, Cantraine.

S. siculum, Cantr. in Bull. Acad. Brux. ix. 2. p. 343 (1843).

S. stramineum, Philippi, Conch.-Cab. ed. Küster, p. 32, t. 4. f. 14.

'Porcupine' Exp. 1869: St. 45a, 45b (two living specimens). 1870: Atl. Setubal B., off C. Sagres; Med. 50, Benzert Road, Rasel Amoush, Adventure Bank.

Distribution. G. Gascony (*De Folin*), Vigo (*McAndrew*), Mediterranean, coast of Barbary (*Ponsonby*), Madeira and Canaries (*McAndrew*); 8-90 fms.

Fossil. Miocene: Calabria (*Seguenza*). Pliocene: (?) Biot, Central and Southern Italy. Post-tertiary: Rhodes (*Hörnes*).

S. stramineum, Philippi (but apparently not of Lamarck, whose species was founded on the description and figures of Chemnitz for a Tranquebar shell); it is also *S. fallaciosum* of Tiberi.

A specimen in Weinkauff's collection, named "*S. discus*, Phil.," is the young of the present species.

4. SOLARIUM ARCHITÆ, O. G. Costa.

S. architæ, O. G. Costa, Cat. test. viv. Taranto, in Atti Acc. Sc. iii. p. 40 (1830); Fauna del Napoli, p. 5, t. i. f. 1a, A, B, C (1841).

'Porcupine' Exp. 1870: Atl. St. C. Sagres; Med. 50, Benzert Road, Rasel Amoush, Adventure Bank.

Distribution. G. Gascony (*De Folin*)!, and throughout the Mediterranean; 30-120 fms.

Fossil. Pliocene: Bolognese (*Foresti*).

S. sowerbyi of Hauley.

The operculum is conical and prominent.

HOMALAXIS ZANCLÆUS, Philippi.

Bifrontia? *zanclæa*, Ph. Moll. Sic. ii. p. 225, t. xxviii. f. 11.

'Porcupine' Exp. 1870: Atl. St. 27, 28, 28a; Med. Rasel Amoush, Adventure Bank.

Distribution. Mediterranean from Gibraltar to Palermo, Madeira (*McAndrew*), G. Mexico (*Pourtalès*), Jamaica (*Barrett*); 18–117 fms.

Fossil. Miocene: Calabria (*Sequenza*). Pliocene: (?) Biot, Central Italy, and Sicily.

Solarium aldrovandi of Foresti is a variety.

Deshayes proposed this genus in 1830 under the name of *Omulaxis* or *Omulalaxis*, and in 1832 as *Bifrontia*. The former name, slightly but necessarily altered in the spelling, must therefore be retained, although *Bifrontia* is equally appropriate. But I am not satisfied that the genus is distinct from *Solarium*. The shape of the shell, and especially of the peculiar operculum, closely resemble those of *S. architæ*. The sculpture of the present species varies greatly in respect of the short longitudinal striæ, which in some specimens are strong and close-set, and in others are entirely wanting. The whorls are often wholly or partly disjointed or are occasionally united.

1. ADEORBIS SUPRANITIDUS, S. Wood.

A. supranitidus, S. Wood, Mon. Crag Moll. in Pal. Soc. Publ. 1848, p. 137, t. xv. f. 5, a, b.

Omalaxis supranitida, G. O. Sars, Moll. reg. arct. Norv. p. 214, t. 22. f. 20, a–c.

'Porcupine' Exp. 1870: Atl. 36, Tangier B.

Distribution. Lofoten I. 200 fms. (*G. O. Sars*), New England (*Verrill*).

Fossil. Pliocene: Coralline Crag.

Both the 'Porcupine' specimens are imperfect; but they agree with Crag specimens in every respect (especially in being tricarinated) except in being spirally and rather strongly striated. *A. tricarinatus* of Searles Wood is certainly another variety, as he suspected. The spiral striæ are wanting in Norwegian specimens, but are conspicuous in the umbilicus of Crag specimens.

The operculum is not known; and it is therefore questionable whether the present species belongs to *Adeorbis* or to *Homalaxis*. It shares some of the characters of both genera.

2. ADEORBIS SUBCARINATUS, Montagu.

Helix subcarinata, Mont. Test. Brit. p. 438, t. 7. f. 9.

A. subcarinatus, B. C. iv. p. 231, pl. iii. f. 5; v. p. 216, pl. lxxix. f. 1.

'Porcupine' Exp. 1869: St. 18, Lough Swilly.

Distribution. British and Irish coasts, from Aberdeenshire to Guernsey, Atlantic coasts of France, Spain, and Portugal, throughout the Mediterranean and Adriatic, and Mogador; low water to 35 fms. The habitat is sublittoral.

Fossil. Miocene: Bordeaux Basin and Transylvania. Pliocene: Coralline and Red Crag, Belgian Crag, Central and Southern Italy. Post-tertiary: Portrush and Selsea.

Several obsolete synonyms.

The animal and its habits were described by Mr. Duprey in

the 'Annals and Magazine of Natural History' for October 1876 and March 1883. I have verified the description.

3. ADEORBIS FRAGILIS, G. O. Sars.

A. fragilis, G. O. Sars, Moll. reg. arct. Norv. p. 213, t. 22. f. 19, a-c.

'Porcupine' Exp. 1870: Atl. 16, 27.

Distribution. Loffoden I. and western coast of Norway; 60-190 fms.

Somewhat resembling *A. pulchralis* of the Coralline Crag, but of a thinner texture, the spire more raised, the whorls more convex, the sculpture much slighter and irregular, and the umbilicus more open.

This and the next species appear to be closely allied to *Fossarus*, the position of which genus has not been satisfactorily determined: it was placed with *Solarium* by Woodward, in the *Littorina* family. According to Troschel, the dentition of *Fossarus* agrees in some respects with that of *Turritella*.

4. ADEORBIS DEPRESSUS, Seguenza. (Plate IV. figs. 8, 8 a.)

Fossarus depressus, Seg. Bull. Real. Comit. Geol. Ital. 1874, fasc. ii. p. 382.

'Porcupine' Exp. 1870: Atl. St. 24, 30.

Distribution. Algiers (*Weinkauff*, as *Fossarus crossei* of Kleiak)!, Strait of Messina (*Seguenza* and *Granata*)!, Palermo (*Monterosato*), Brindisi (*Aradas*)!; 11-108 fms.

Fossil. Pliocene: Messina (*Seguenza*).

This pretty little shell, examined under a microscope, is exquisitely sculptured by close-set longitudinal folds and intermediate spiral striæ, or thread-like lines. Some specimens have the whorls more or less disunited in cornucopia fashion. It seems to connect *Adeorbis* with *Fossarus*.

According to the catalogue of Kleiak's collection of Dalmatian shells his *Natica crosseana* is a synonym of *Fossarus petitionus*, Tiberi=*Stomatia azonea*, Brusina.

FOSSARUS RETICULATUS, S. Wood. (Plate IV. fig. 9.)

Lacuna reticulata, S. Wood, Mon. Crag Moll. vol. i. p. 122, t. xii. f. 10, and t. xv. f. 12.

Fossarus interjunctus, Jeffreys, MS.

SHELL oblong, rather solid, semitransparent, lustreless: *sculpture*, numerous, curved, and rather sharp longitudinal ribs which cover the last or body-whorl; these and their interstices are crossed by more numerous close-set and minute spiral striæ, but not so as to cause cancellation; the upper whorls are quite smooth: *colour* light yellowish brown: *spire* somewhat elongated or extended, and ending in a blunt point: *whorls* 4, rather convex, the last disproportionately large, the uppermost bulbous and intorted: *suture* deep: *mouth* oval: *outer lip* thick: *inner lip* attached to the pillar: *umbilicus*

none, except as regards a slight depression at the base. L. 0·06, B. 0·05.

‘Porcupine’ Exp. 1870 : Atl. St. 36. A single and not quite perfect specimen.

It is not the young of any known species of *Fossarus*.

Since the above description was written I have ascertained, by comparison of specimens, that this species is the Coralline-Crag fossil, described and figured by the late Mr. Searles Wood under the name of *Lacuna reticulata*—which must therefore replace the specific name *interjunctus*, which I had imposed upon this form.

A. Not umbilicate.

1. SEGUENZIA FORMOSA, Jeffreys.

S. formosa, Jeffr. in Proc. R. S. 1876, pp. 200, 201 (woodcuts); Ann. & Mag. Nat. Hist. 1877, p. 319; Journ. Linn. Soc., Zool. vol. xiv. p. 605.

‘Porcupine’ Exp. 1870 : Atl. St. 17a, off C. Espichel, 22.

Distribution. ‘Valorous’ Exp., off Culebra I. and Bermudas (‘Challenger’ Exp.), G. Mexico (*Pourtales*), off Marocco and C. Verd I. (‘Talisman’ Exp.), New-England coast (*Verrill*); 325–2033 fms.

Fossil. ?Miocene : Calabria (*Seguenza*). Pliocene : Sicily (*Seguenza*), Bologna (*Capellini*)!

Trochocochlea monocingulata, Seguenza, MS.

The sinus or slit in the outer lip of this remarkable shell would seem to indicate some corresponding organization of the animal. Similar instances occur in the cases of *Scissurella*, *Emarginula*, *Siliquaria*, *Pleurotomaria*, and the *Pleurotoma* family. Professor Verrill proposed to make *Seguenzia* the type of a distinct family; but until the animal is completely known (and not merely through the operculum and odontophore), I think it would be better to defer guessing as to the position of this genus in any scheme of classification.

B. Umbilicate.

2. SEGUENZIA ELEGANS¹, Jeffreys. (Plate V. figs. 1, 1a.)

S. elegans, Jeffr. in Proc. R. S. 1876, p. 200.

SHELL globose, and forming a short cone, rather thin, semitransparent, somewhat nacreous and glossy: *sculpture*, sharp spiral ridges or keels, of which there are 4 or 5 on the body-whorl, 2 on the penultimate and next whorls, and 1 on each of the upper whorls; there are also occasional and nearly microscopic thread-like spiral striæ between the ridges; the interstices of the ridges, and sometimes the ridges themselves, are crossed by rows of minute and numerous striæ in the opposite direction to the line of growth, some of these striæ being curved, others oblique, straight, or alternately arranged; in those specimens where the cross striæ extend

¹ Elegant.

over the spiral ridges, a nodose or tuberos appearance is caused by their intersection; the base is covered with delicate and close-set spiral striæ; apex smooth: *colour* pearly white: *suture* slight: *spire* short, turreted: *whorls* 5-6, convex; the last occupies three fourths of the shell; the first or topmost whorl is bulbous and intorted: *mouth* large, polygonal, irregularly sinuated at its base: *outer lip* thin and prominent: *fissure* placed a little below the suture of the last whorl; it is broad, deep, and ends in a curved indentation: *inner lip* none: *pillar* semicircular: *umbilicus* narrow, but distinct and deep-margined outside, and defined by a slight ridge or keel which terminates in a sharp and projecting point. L. 0·125, B. 0·1.

'Porcupine' Exp. 1870: Atl. St. 16, 17, 17a.

Distribution. Bay of Biscay ('Travailleur' Exp.).

Not *S. eritima* of Verrill, judging from the description and figure.

3. SEGUENZIA TRICARINATA¹, Jeffreys. (Plate V. fig. 2.)

SHELL globose, very thin and fragile, transparent, and of a glassy lustre: *sculpture*, three spiral thread-like striæ or keels on the body-whorl, viz. one encircling the periphery, another at a short distance below it, and a third at a somewhat greater distance above the peripheral stria; the penultimate whorl is marked with a similar stria, a little above the suture; the next whorl is keeled at the top: *colour* whitish: *suture* deep: *spire* short and compressed: *whorls* 3-4, convex; the last is disproportionally large; apex flattened: *mouth* roundish, angulated at the base: *outer lip* thin; fissure wide but shallow, forming an angular indentation: *inner lip* filmy: *pillar* gently curved and thickened: *umbilicus* narrow and shallow, margined outside by a slight but distinct semicircular stria or keel. L. 0·075, B. 0·075.

'Porcupine' Exp. 1870: Atl. St. 17a. A single but characteristic specimen.

Distribution. Off C. Verd. I. ('Talisman' Exp.); 1192 fms.

4. SEGUENZIA CARINATA, Jeffreys. (Plate V. figs. 3, 3 a.)

S. carinata, Jeffr. Proc. R. S. 1876, p. 201; Ann. & Mag. Nat. Hist. 1877, p. 320.

'Porcupine' Exp. 1870: Atl. St. 16, 17a, off C. Espichel, 22.

Distribution. North Atlantic ('Valorous' Exp.), off Fayal, Azores ('Challenger' Exp.), off Marocco, Salaria, C. Verd. I., and Azores ('Talisman' Exp.); 681-2199 fms.

This species has a labial slit as in the typical species *S. formosa*.

5. SEGUENZIA RETICULATA, Philippi.

Solarium reticulatum, Phil. Moll. Sic. ii. p. 149, t. xxv. f. 6.

'Porcupine' Exp. 1870: Atl. St. 9, 16, 17, 17a.

Distribution. Coast of Portugal ('Travailleur' Exp.), off Ascension I., and Culebra I. ('Challenger' Exp.); 390-1791 fms.

¹ Having three keels.

Fossil. Pliocene : Lamato in Calabria (*Philippi*).

Trochus (Solariella) lusitanicus, Fischer.

An elegant and exquisitely sculptured shell.

6. SEGUENZIA LAXA¹, Jeffreys. (Plate V. figs. 4, 4 a.)

SHELL imperfect, consisting of scarcely two whorls; these are cylindrical and scalariform, spirally and regularly striated: *mouth* nearly detached, squarish; expanding on the inner or pillar side, and somewhat effuse or spread out at the base: *umbilicus* narrow and contracted, but deep. L. (apparently) 0·25, B. 0·2.

'Porcupine' Exp. 1870: Atl. St. 16. A fragmentary specimen, but peculiar and worth noticing. Whether it belongs to the present genus, or even to the same family, may be doubtful. However, a perfect specimen will be probably discovered in future deep-sea expeditions.

Family XXIII. XENOPHORIDÆ.

XENOPHORA CRISPA, König.

Trochus crispus (König), Bronn in Italiens Tertiär-Gebilde, 1831, p. 62.

'Porcupine' Exp. 1870: Med. St. 40, 41, Rasel Amoush, 58.

Distribution. G. Gascony (*De Folin*), Mediterranean (*Deshayes*), Sardinia and Bona (*Tiberi*), Tuscany (*Appelius*), W. Africa (*v. Martens*), C. Verd I. ('Gazelle' Exp.), off Sahara ('Talisman' Exp.); 47-486 fms.

Fossil. Pliocene; throughout Italy. ? Post-tertiary: Rhodes.

X. mediterranea of Tiberi, and *X. commutata* of Fischer. I cannot distinguish the living from the fossil form by any valid character. The only ground of such distinction would be that usually the umbilicus is more or less open in the former and more or less closed in the latter. But of two Tertiary specimens now before me from Castel d'Arquato, for which I am indebted to the kindness of Count Angelo Manzoni, one has the umbilicus open and the other has it closed. Bronn says in his description of *Trochus crispus*, "Umbilico subvariabili, primum aperto, serius subsemiclauso." In consequence of having in the course of my continued labours for more than half a century examined so many thousand, indeed I might say so many ten thousand, specimens of shells from different parts of the North Atlantic, I may perhaps be more inclined to unite or "lump" than subdivide or "split" species; and if any explanation be expected from me for not having adopted all the species proposed by continental conchologists, whose power of discrimination is fully equal, if not superior, to my own, I hope to be excused by them in that spirit which is the bond of all science. My old and much valued friend Dr. Tiberi is entitled to the credit of having discovered or confirmed the discovery of the present species as an inhabitant of the Mediterranean.

Woodward strangely placed this genus with *Solarium* in the *Littorina* family, and he assigned to it Montfort's name of *Phorus*;

¹ Loose.

but Fischer de Waldheim's name of *Xenophora* has the priority of three years over that of Montfort.

The apex of the shell forms a short but compact cone of several smooth whorls.

Family XXIV. VELUTINIDÆ.

1. LAMELLARIA PERSPICUA, Linné.

Helix perspicua, L. S. N. p. 1250.

L. perspicua, B. C. iv. p. 235, pl. iii. f. 6; v. p. 235, pl. lxxix. f. 2.

'Porcupine' Exp. 1870: Atl. St. 26; Med. Rasel Amoush, G. Tunis.

Distribution. Norway, Faroe I., Great Britain and Ireland, Brest (*Daniel*), Atlantic coasts of France and Spain (*Hidalgo*), throughout the Mediterranean and Adriatic, Canaries (*McAndrew*), Labrador, Canada, United States; 0-108 fms.

Fossil. Pliocene: Coralline Crag, Monte Mario, Calabria, and Sicily.

Bulla haliotoidea and *Lamellaria tentaculata*, Montagu, *Marsenia producta* and *complanata*, Leach, *Sigaretus vitreus*, O. G. Costa, and *S. audouinii*, Cantraine ex typo.

2. LAMELLARIA TENUIS¹, Jeffreys. (Plate V. figs. 5-5 b.)

SHELL nearly circular in outline with a concave base, thin and fragile, semitransparent and glossy: *sculpture*, extremely delicate, close-set, and microscopic spiral striæ; these are sometimes wanting on parts of the surface: *colour* clear white: *spire* small, laterally placed and depressed: *whorls* $2\frac{1}{2}$, rather convex; the last occupies five sixths of the shell; the first or apical whorl is sunken, incomplete, and twisted inwards: *suture* narrow, but deep: *mouth* nearly round and expanding: *outer lip* projecting above the periphery, and forming at the base a short and slightly reflected pillar: *inner lip* none: *umbilicus* small, but distinct and deep. L. 0.1, B. 0.15.

'Porcupine' Exp. 1870: Atl. St. 16. Four specimens.

It differs from *Sigaretus excavatus* of Searles Wood in shape, the spire, and the umbilicus, as described and figured in his Monograph on the Crag Mollusca.

This delicate little shell appears to be internal and completely enclosed within the mantle of the animal, because of its fragility, the incompleteness of the nucleus, and its not having any trace of an epidermis, which is conspicuous in *Sigaretus striatus* or *haliotoideus*. But the distinction between *Lamellaria* and *Sigaretus* is not so well defined as could be wished. The chief difference consists in the presence or absence of an operculum. The sculpture of the present shell resembles that of certain species of *Philine*.

¹ Thin.

Family XXV. CAPULIDÆ.

This would seem to be the natural position of the family. Mr. Jabez Hogg, in an excellent and beautifully illustrated paper on the lingual membrane of Mollusca (Trans. Roy. Micr. Soc. xvi. n. s.), says as to *Capulus hungaricus*, "Dentition is seen to be almost identical with *Velutina*."

CAPULUS HUNGARICUS, Linné.

Patella ungarica, L. S. N. p. 1259.

C. hungaricus, B. C. iii. p. 269, pl. vi. f. 5; v. p. 201, pl. lix. f. 6, 6a.

'Lightning' Exp., St. 2, 4.

'Porcupine' Exp. 1869: St. 2, 45 a, 45 b, 70. 1870: Atl. 9, 10, 13, 16, 27, 28, 28a, 36; Med. Rassel Amoush, Adventure Bank.

Distribution. From arctic Norway to the Mediterranean, Ægean, and Adriatic, New England (*Verrill*); 0-458 fms.

Fossil. All the Tertiary fossiliferous beds in Europe; 0-1360 ft.

There are many obsolete and useless synonyms, including so-called species of the fossil so-called genus *Brocchia*. See my 'Notes on Brocchi's Collection of Subapennine Shells' in the Quarterly Journal of the Geological Society for February 1884. The young has been called *Capulus* or *Peleopsis militaris*.

This common shell attains to a considerable size. I have one from Algiers exceeding two inches in length; and I noticed a still larger specimen in Dr. Tiberi's collection from the Bay of Naples. Owing to its quasi-parasitic habit it is very liable to distortion in various ways, being sometimes compressed laterally, expanded, obliquely formed, or angulated, as in Crag specimens of Searles Wood and Mr. Alfred Bell.

Family XXVI. CANCELLARIIDÆ.

1. TORELLIA VESTITA, Jeffreys.

T. vestita, B. C. iv. p. 244, pl. iv. f. 1; v. pl. lxxix. f. 5.

'Lightning' Exp. St. 4.

'Porcupine' Exp. 1869: St. 23, 30, 58.

Distribution. Norway, from Lofoden I. southwards (*Lovén* and others), Shetland (*Barlee*), New England and G. Maine (*Verrill*); 4½-317 fms.

Herr Friele informs me that the animal is of a pale flesh-colour, the head not very prominent and notched in front; tentacles rather long and pointed; eyes on small bulbs near the outer base of the tentacles; the foot longish and narrow, broader, truncated, and horizontally cloven in front. Professor G. O. Sars has lately dredged on the west coast of Norway a very large and living specimen, more than an inch long.

The operculum is small, acutely triangular like that of *Trophon* and *Fusus*, and is ridged transversely.

The genus *Choristes* of the late Dr. Philip Carpenter, from the

Post-tertiary formation near Montreal, is a synonym of *Torellia*. His *C. elegans* closely approaches the present species, and seems to differ chiefly in having a smooth epidermis.

2. TORELLIA? DELICATA, Philippi.

Cyclostoma? delicatum, Phil. Moll. Sic. ii. p. 222, t. xxviii. f. 3.

'Porcupine' Exp. 1870: Atl. St. 16, 17 a, 24.

Fossil. Pliocene: Messina and Calabria (*Otto f. Philippi*, and *Seguenza*).

Through the kindness of my friend Professor Seguenza, I have compared a fossil specimen with the recent specimens from the 'Porcupine' Expedition; and all of them exactly agree, as well as with the description and figures of Philippi. The sculpture is most delicate and exquisitely reticulated. My largest and most perfect of the 'Porcupine' specimens is more abnormal than the rest (perhaps a variety), and resembles in shape *Lacuna pallidula*. I have therefore figured it as a variety of the present species in Plate V. figs. 6, 6 a.

Although this shell certainly does not belong to *Cyclostoma*, as doubtfully given by Philippi, it wants some of the characters of *Torellia*, as defined by me in 'British Conchology,' vol. iv. p. 244, viz. the velvety epidermis and tubercle on the pillar. In my correspondence with Prof. Seguenza some years ago, I had suggested the generic name *Trachyoma*, which he adopted in his excellent treatise on the Tertiary formation of Reggio province in Calabria, 1879.

1. TRICHOTROPIS BOREALIS, Broderip and Sowerby.

T. borealis, Br. and Sow. in Zool. Journ. iv. p. 375: B. C. iv. p. 245, pl. iv. f. 2; v. p. 216, pl. lxxix. f. 6.

'Lightning' Exp. St. 4.

'Porcupine' Exp. 1869: St. 68.

Distribution. Arctic ocean in both hemispheres, Iceland, Faroe I., Norway, Shetland to the Dogger Bank and coasts of Ireland, N.E. and N.W. America; 2-175 fms.

Fossil. Pliocene: Coralline Crag, Sicily (*Brugnone*). Post-tertiary: Norway and Sweden, Scotland, Ireland, North of England and Wales, Siberia, Labrador, and Canada; 0-1360 ft. It appears that the genus is not restricted to northern seas, Mr. Ball having described a species from the Havana coast, below the Tropic of Cancer.

Synonyms so numerous that it would be unnecessary to quote them. *T. inermis* of Hinds was founded on a specimen which had lost its bristly epidermis.

An imperfect specimen of a species, which Friele procured in the 'Vöringen' Expedition on the arctic coast of Norway in 650 fathoms and named "*Trichotropis (Iphinöe) inflata*," occurred at Station 23a of the 'Porcupine Expedition' in 1869.

2. *TRICHOTROPIS FIMBRIATA*¹, Jeffreys. (Plate V. figs. 7, 7a.)

SHELL oblong, thin, semitransparent, nearly lustreless: *sculpture*, several rows or ridges of fine spiral striæ, which are covered by short and close-set bristles of the epidermis; there are from eight to ten of these rows on the body-whorl, two on the next, and one on each of the two succeeding whorls; the interstices of these rows as well as the rest of the shell marked lengthwise by very slight and microscopic lines: *colour* yellowish-brown: *spire* elongated, bluntly crested at the top: *whorls* 4-5, convex, somewhat turreted, regularly increasing in growth; the last equals one half of the spire when the mouth is placed downwards; the apical whorl is compressed and slightly intorted: *suture* deep: *mouth* triangularly oval, about two fifths the length of the spire: *outer lip* curved, thin-edged, angular and inflected above, expanded at the base, but not notched: *inner lip* filmy: *pillar* almost straight: *umbilicus* none. L. 0.1, B. 0.075.

'Porcupine' Exp. 1869: St. 16. A single specimen.

3. *TRICHOTROPIS DENSISTRIATA*², Jeffreys. (Plate V. figs. 8, 8a.)

SHELL oval, thin, semitransparent, and nearly lustreless: *sculpture*, numerous rows of exceedingly fine spiral striæ, which are covered by minute and close-set prickles; there are from 20 to 25 of these rows on the body-whorl, and from eight to ten on the penultimate whorl: *colour* pale yellowish-brown: *spire* short, blunt at the top: *whorls* 3-4, rather tumid; the last equals two thirds of the shell with the mouth downwards, or placed in a prone position; the apical whorl is irregular: *suture* well marked but not deep: *mouth* exactly oval, about half the length of the spire: *outer lip* rounded, thin, angulated above, notched below: *inner lip* thickened: *pillar* curved, abruptly terminating in a sharp point at the base, below which is formed the basal notch: *umbilicus* none. L. 0.085, B. 0.065.

'Porcupine' Exp. 1869: St. 16, 23 a. A single specimen from each station.

Distribution. C. Verd I. ('Talisman' Exp.); 1192 fms.

This minute species seems from the notched base to connect *Trichotropis* with *Admete*.

1. *CANCELLARIA VIRIDULA*, Fabricius.

Tritonium viridulum, Fabr. Fn. Gr. p. 402.

Admete viridula, G. O. Sars, Moll. reg. arct. Norv. p. 215, t. 13. f. 1 a, b, 2.

'Lightning' Exp.: St. 1, 3.

'Porcupine' Exp. 1869: 61, 65. 1870: Atl. 1, 2.

Distribution. Arctic seas in the Atlantic and Pacific, Iceland, Norway, C. Cod northwards, and North Japan; 2-1255 fms.

Fossil. Pliocene: English and Belgian Crags, Iceland. Post-

¹ Fringed.

² Closely striated.

tertiary: Siberia, Norway, Bridlington, Lancashire, Cheshire, and Labrador.

Murex costellifer, J. Sowerby, *Admete crispa*, Möller, and *Cancellaria buccinoides*, Couthouy.

Among the varieties are one having the spire produced or elongated, and another which is much larger. The columellar folds are much stronger and more conspicuous in specimens from Spitzbergen and North America, and from the fossil bed at Bridlington. Spire bulbous and intorted. The animal was described by me in the 'Annals and Magazine of Natural History' for April 1877.

2. CANCELLARIA MITRÆFORMIS, Brocchi.

Voluta mitræformis, Brocchi, *Conch. foss. Subap.* ii. p. 645, t. xv. f. 13.

C. pusilla, H. Ad. in P. Z. S. 1869, p. 274, pl. 19. f. 12.

'Porcupine' Exp. 1870: Alt. St. 16, 24, 25, 28, 30.

Distribution. B. Biscay ('Trav.' Exp. 1882), 249 fms.!, Canary I. (*McAndrew*)!

Fossil. Pliocene: Coralline Crag, Denmark (*Mörch*), Biot, and throughout Italy.

This appears to be a variety of Brocchi's species, and may be a somewhat altered descendant. The chief difference between the recent and fossil shell seems to consist in the former having only a few spiral ridges, while the latter is closely striated in the same direction as well as indistinctly reticulated by numerous and slight longitudinal striæ.

Not *C. pusilla* of Sowerby's 'Conchological Illustrations,' 1841.

3. CANCELLARIA MINIMA, Reeve.

C. minima, Reeve, *Conch. Icon. (Cancellaria)*, pl. xvii. f. 77, a, b.

'Porcupine' Exp. 1870: Alt. St. 28. Five specimens.

Distribution. Gibraltar and Madeira (*McAndrew*).

No habitat is given in Reeve's work, Cuming's collection being the only authority.

Allied to *C. subangulosa* of S. Wood from the Coralline Crag, but differs in the want of angularity, as well as in the stronger and coarser sculpture, especially with respect to the longitudinal ribs; the sculpture of the apex is also different, consisting in the recent species of very fine and microscopic spiral lines, and in the fossil shell of minute longitudinal striæ. A variety of *C. minima*, which has the whorls angulated below the suture as in the fossil species, was dredged by *McAndrew* with the typical form off Madeira and the Canaries; this has the same sculpture as in the recent species; and perhaps all these forms may represent one and the same species. In that case Searles Wood's name *subangulosa* would have priority over that of Reeve.

4. CANCELLARIA CANCELLATA, Linné.

Voluta cancellata, L. S. N. p. 1191.

C. cancellata, De Blainville, Faune Franç. p. 142, pl. 4 B. f. 1 ; Hid. Mol. mar. de Esp. lam. ii. f. 3, 4 (opt.).

'Porcupine' Exp. 1870: Atl. St. C. Sagres (fr.); Med. 50, Benzert Road, Rasel Amoush.

Distribution. G. Gascony (*De Folin*), Atlantic coasts of Spain and Western Africa, Mediterranean and Adriatic; 4-100 fms.

Fossil. Miocene: Vienna and Bordeaux Basins, Northern and Central Italy. Pliocene: Denmark (*Mörch*), Biot, Italy, Algeria, and C. Verd I. (*Rochebrune*).

C. similis of Sowerby is scarcely a variety.

The apex of the shell is trochiform and different from that of other species; it resembles in shape and sculpture the apex of *Columbella halicæti*.

Family XXVII. APORRHAÏDÆ.

1. APORRHAÏS PES-PELECANI, Linné.

Strombus pes-pelecani, L. S. N. p. 1207.

A. pes-pelecani, B. C. iv. p. 250, pl. iv. f. 3; v. p. 216, pl. lxxx. f. 1.

'Lightning' Exp. St. 5.

'Porcupine' Exp. 1869: 2, 13-15, 18, 35, the Minch, off Lerwick. 1870: Atl. 2, 10, 11, C. Sagres; Med. C. de Gata, 55, G. Bona, Benzert Road, G. Tunis. Specimens from Cape Sagres and the last three stations belong to a variety which I would name *carinata*. They are keeled in the middle of each whorl, the ribs are nodose, and the spire tapers to a fine point. This variety may be *meridionalis* of Basterot.

Distribution. Throughout the North Atlantic from Iceland and Finmark to the Mediterranean, Adriatic, and Ægean; 6-100 fms.

Fossil. Every Miocene, Pliocene, and Post-tertiary or Quaternary bed in Europe, as well as the last in Rhodes and Cos, from the sea-level to 1360 feet above it. Var. *carinata*, Coralline Crag (S. Wood, as probably *A. serresianus*).

2. APORRHAÏS SERRESIANUS, Michaud.

Rostellaria serresiana, Mich. in Bull. Soc. Linn. Bord. 1828, p. 120, f. 3, 4.

Chenopus serresianus, Philippi, Moll. Sic. ii. p. 185, t. xxvii. f. 8

Var. *A. macandrea*, B. C. iv. p. 253; v. p. 216, pl. lxxx. f. 2.

'Porcupine' Exp. 1869: St. 1, 3, 5, 6, 10, 17, 18, 23a, 45a, 45b, 64, 65, 68, 70, Little Minch, off Lerwick. 1870: Atl. 3, 3a, 6, 8-14, C. Sagres, 26-28a; Med. 50a, off Jijeli and Rinaldo's Chair, Adventure Bank. Variable as to the number and position of the spikes. One monstrous specimen has a spur which projects from behind the lower part of the pillar, besides a double spike at the base. Another specimen is somewhat scalariform. The variety *macandrea* is smaller and more slender; it occurs with the typical form in the Mediterranean.

Distribution. Finmark, Lofoden I., West Norway, between the Faroes and Hebrides, Shetland, Bay of Biscay, Mediterranean, and Adriatic; 40-913 fms.

Fossil. Pliocene: Belgian Crag (*Van Beneden*, as *A. pes-carbonis*), Calabria and Sicily (*Philippi* and others as *Chenopus desciscens*).

I extract from my notes made in the 'Porcupine' Expedition of 1862, the following description of the animal of the variety *macandreae*:—BODY cream-colour: snout cylindrical and extensible, pinkish, with a yellow streak half way down the middle in front; the extremity is edged with a yellowish rim or border and is also of the same colour underneath: *tentacles* thread-like and very slender, marked with a narrow white line down the middle in front: *eyes* very small, sessile on the tentacles at their outer base: *foot* long and narrow, squarish in front and pointed behind.

Having since the publication of my work on British Conchology dredged on the western coast of Ireland, as well as in the northern part of our seas, specimens of much larger size than those which I had described as *A. macandreae*, even exceeding those of *A. serresianus* from the Mediterranean, I now feel myself obliged to give up my species and to consider it a variety.

My suspicion that *Chenopus desciscens* of *Philippi* was a fossil representative or form of the present species, or rather of the variety *macandreae*, has been verified by a comparison with recent specimens, which has been effected through the obliging transmission by Prof. Seguenza of fossil specimens of *C. desciscens*. I may here remark that *Philippi*, in his 'Handbuch der Conchyliologie und Malacozologie' (published nine years after the last volume of his work on the Mollusca of the Two Sicilies), restored the far older generic name *Aporrhais* and substituted it for *Chenopus*.

It is almost impossible to say whether *Rostellaria pes-carbonis* of *Brongniart* was intended for *A. serresianus* or for some other Pliocene species from the Vicentia district. His description and figure were necessarily incomplete, being avowedly founded on a fragmentary and very imperfect specimen. I have received from correspondents under the former name a very different species from *A. serresianus*.

Family XXVIII. CERITHIIDÆ.

This family has been lately placed by the Marquis di Monterosato between *Muricidæ* and *Pleurotomidæ*, although no reason is given for this apparently strange allocation. While giving my old friend and correspondent full credit for his knowledge of Mediterranean shells, and for his industry which is evidenced by his last work, 'Nomenclatura generica e specifica di alcune Conchiglie Mediterranee,' I cannot help regretting that he has not described the numerous so-called species to which he has from time to time given names only. These names cannot be recognized under the present or perhaps any system of classification, but must be treated as manuscript. With respect to his proposed multiplication of new

genera and species on a very extensive scale, he is of course at perfect liberty to please himself; time, however, will show whether other conchologists will adopt them. And I would also observe that it is unusual, if not discourteous, to so positively and *ex cathedrâ* contradict other writers—who have the same means and ability as himself for judging as to the authority of species previously published—without offering some reason for his dissent from their opinion.

Genus STILUS¹, Jeffreys.

SHELL spit-shaped, reticulated; apex forming a twisted and abruptly semidetached peak; basal groove short and recurved.

The peculiarity of this genus consists in the apex, which is different from that of any other genus which I know. I consider this character important.

STILUS INSIGNIS², Jeffreys. (Plate VI. figs. 1-1 b.)

SHELL obeliscoid, rather thick, opaque, but glossy: *sculpture*, numerous and somewhat curved longitudinal ribs, of which there are from 30 to 40 on the last whorl; these are crossed by 3 spiral striæ on each whorl, so as to cause by their intersection minute tubercles on the striæ; the periphery is encircled by a slight ridge; the base is quite smooth and somewhat concave; the ribs on the apical or top whorls are very few and flexuous: *colour* white: *spire* tapering, and abruptly terminating in a short, twisted, and upturned point: *whorls* 10-12, flattened, and gradually enlarging; the last equals about one third of the shell: *suture* narrow, but well defined: *mouth* small, squarish, with a short recurved groove turning to the left, as in typical species of this family: *outer lip* thin, scalloped or indented by the spiral striæ: *inner lip* inconspicuous: *pillar* flexuous. L. 0·25, B. 0·075.

'Porcupine' Exp. 1870: Atl. St. 29, 31-34. Several specimens.

LÆOCOCHLIS GRANOSA, Searles Wood.

C. granosum, S. Wood, Crag Moll. 1848, p. 73, pl. viii. f. 9.

L. granosa, G. O. Sars, Moll. reg. arct. Norv. p. 190, t. 13. f. 6.

'Lightning' Exp. St. 2.

'Porcupine' Exp. 1869: 23a, 65, 89, 90.

Distribution. Norway from Fiumark to Bergen, North Sea Exp. (Metzger); 30-300 fms.

Fossil. Pliocene: Red and Coralline Crags, Antwerp Crag (Brussels Museum, as *C. sinistratum* of Nyst, although the species described and figured by him is apparently different)!

Triforis macandreae of H. Adams, *Triforis nivea* of M. Sars's MS., and *Læocochlis pomeraniæ* of Dunker and Metzger.

The spire in this singular genus, which was established by Dunker and Metzger, is reversed or sinistrorsal; the basal groove is recurved and twisted; and the apex is sculptured, as in typical species of

¹ Having the shape of a Roman style or instrument for writing on waxen tablets.

² Remarkable.

Cerithium. It has no operculum. Professor G. O. Sars has kindly furnished me with the following remarks as to the odontophore of *L. granosa* compared with that of *C. tuberculatum*:—"In the former it is remarkably slender, and has all the plates (including the uncinii) nearly uniform in shape and strongly curved, almost hooked, without distinctly marked secondary teeth; whereas in *C. tuberculatum* the odontophore (as in *C. reticulatum*) is comparatively short and broad, with the middle and lateral plates strongly denticulated at the edge, and the uncinii rather slender. Moreover the jaws in the two forms are of a somewhat different shape." I do not, however, attach much importance to the character of dentition alone, because it must depend on the nature of the food, and cannot be distinguishable in the fossil state.

At first sight the Crag form would seem to be different from the recent or living form, because the former is cancellated or reticulated, while the latter has spiral striæ only. But this difference disappears in the examination of a great many recent specimens, some of which have the longitudinal striæ or ribs stronger and more developed than in other specimens: this partly accounts for the sculpture, and some allowance must be made for the rubbed or abraded condition of nearly all fossil (and especially Red Crag) shells. One of my recent specimens is uniformly reticulated.

1. CERITHIUM TUBERCULATUM, Linné.

Strombus tuberculatus, L. S. N. p. 1213; B. C. iv. p. 264.

C. vulgatum, De Blainville, Fn. Franç. p. 153, pl. 6 A. f. 1, & p. 154, same plate, f. 5; Philippi, Moll. Sic. i. p. 192, t. xi. f. 3, 4, 5, 8, 9.

'Porcupine' Exp. 1870: Atl. St. 26 (fragment); Med. Capo de Gata, 55.

Distribution. Bergen and Manger on the western coast of Norway, in the stomachs of cod (*M. Sars*), Jersey (*J. G. J.*; dead specimens), Herm (*Dodd*; also dead), Brest and adjacent coast (*Daniel*), Pornichet in the Loire-inférieure (*Cailliaud*; living), Atlantic coast of Spain (*Hidalgo*), throughout the Mediterranean, Black Sea, Adriatic, Senegal (*Adunson*), Canaries (*d'Orbigny* and *McAndrew*), Madeira (*McAndrew*); 0-120 fms. Inhabits the littoral and laminarian zones.

Fossil. Miocene, Pliocene, and Post-tertiary: Vienna and Bordeaux Basins, Transylvania, Biot, Italy, Rhodes, Cos, Cyprus, Morea, Algeria, and C. Verd I.

This abundant species is of course extremely variable in respect of the proportionate dimensions, size, and sculpture, and has received numerous synonyms. Weinkauff has noted eleven.

Caruana says that the Maltese name is "brancutlu," and that it is used for food.

2. CERITHIUM PROCERUM, Jeffreys. (Plate VI. figs. 2, 2 a.)

C. procerum, Jeffr. in Ann. & Mag. N. H. April 1877, p. 322.

'Lightning' Exp. St. 1.

'Porcupine' Exp. 1869: 23*a*. 1870: Atl. 22.

Distribution. North Atlantic ('Valorous' Exp.), Spitzbergen ('Vöringen' Exp.), between the Faroes and Hebrides ('Triton' cruise); 400–1450 fms.

C. danielsseni, Friele. *C. procerum* of Kiener is, according to Deshayes, a variety of *C. fasciatum* of Bruguière.

3. CERITHIUM METULA, Lovén.

C. metula, Lov. Ind. Moll. Scand. p. 23: B. C. iv. p. 256; v. p. 217, pl. lxx. f. 3.

'Lightning' Exp. St. 2, 5.

'Porcupine' Exp. 1869: 23*a*, 42, 47, 61, 65. 1870: Atl. 1, 2, 3, 6, 9, 16, 24–30.

Distribution. Spitzbergen ('Vöringen' Exp.), Finmark to Christianiafiord and North Sea, Shetland, between the Faroes and Hebrides ('Knight Errant' and 'Triton' cruises), Fair Isle (*Möller, f. Mörch*), Bay of Biscay ('Travailleur' Exp.), Villafranca (*Hanley*); 20–650 fms.

C. nitidum, Mc Andrew and Forbes.

The number of the spiral ridges varies from 2 to 3; and the arrangement of the ridges is not uniform, being more compact or remote in some specimens than in others.

The type of G. O. Sars's genus *Lovenella*.

4. CERITHIUM GRACILE¹, Jeffreys. (Plate VI. figs. 3, 3*a*.)

SHELL resembling *C. metula* in shape, but smaller and more slender, semitransparent, very glossy and of a prismatic lustre: *sculpture*, numerous curved longitudinal riblets, which are crossed by fine and thread-like spiral ridges; of these last there are three on the last or body-whorl (*viz.* one below the periphery, the second or strongest encircling the periphery, and the third placed just below the suture); the ridges on each of the succeeding whorls are two in number, the larger being central, more prominent, and giving an angulated or keel-like appearance; the base of the shell is quite smooth and somewhat concave; the apex is also smooth; the intercrossing of the longitudinal and spiral striæ produces a few slight nodules in the middle of the shell, but not the tuberculated character of the last species: *colour* glossy white: *spire* tapering to a blunt point: *whorls* 12, rather convex, gradually enlarging; the last occupies one third of the spire with the mouth of the shell placed upwards; the first or apical whorl is bulbous and obliquely twisted: *suture* defined more distinctly than in the other species: *mouth* irregularly rhombic, with a deep and wide groove at the base as in that species; its length is about one fourth of the shell: *outer lip* thickish, indented or scalloped by the spiral ridges: *inner lip* filmy: *pillar* flexuous. L. 0·3, B. 0·075.

'Porcupine' Exp. 1870: Atl. St. 3. A single but perfect and living specimen.

¹ Slender.

Distribution. Off Sahara, C. Verd I., and Azores ('Talisman' Exp.); 681–1261 fms.

This elegant shell is closely allied to *Cerithiella whiteavesii* of Verrill, from the coast of New England, and may be the same species.

5. *CERITHIUM OBELISCOÏDES*¹, Jeffreys. (Plate VI. figs. 4, 4 a.)

SHELL pyramidal, rather thin, semitransparent, and glossy: *sculpture*, more or less numerous fine and rounded longitudinal striæ, which are crossed by a few spiral striæ: of the latter there are 5 or 6 on the last whorl, 4 or 5 on the penultimate, and 3 or 4 on the following three or four whorls; the second whorl is marked by close-set and more curved longitudinal striæ; the top whorl is quite smooth, as well as the base of the shell; the intersection of the two sets of striæ gives a reticulated but not a decidedly nodulous appearance; a considerable space below the suture in each whorl has the longitudinal striæ only: *colour* milk-white: *spire* gradually tapering to a very blunt point: *whorls* 7–9, convex; the last is equal to two fifths of the spire in length; the first whorl is bulbous, and in some specimens is larger and broader than the succeeding whorl: *suture* rather deep, defined by the lowest and thread-like of the spiral striæ: *mouth* as in the other species of this section, but smaller and with a shorter groove: *outer lip* thin, scalloped: *inner lip* inconspicuous: *pillar* flexuous. L. 0·175, B. 0·05. Some imperfect specimens show that this species attains a comparatively much greater size.

'Porcupine' Exp. 1870: Atl. St. 16, 17, 17a.

6. *CERITHIUM CYLINDRATUM*², Jeffreys. (Plate VI. figs. 5, 5 a.)

SHELL rather cylindrical, thick, opaque, lustreless: *sculpture*, numerous straight longitudinal striæ, which are crossed by fewer and finer spiral thread-like striæ, so as to present a reticulated appearance and to make the points of intersection tuberos or scabrous; the spiral striæ are 4 on the last whorl, besides a basal line below the periphery, and 3 on each of the preceding whorls; the second, and sometimes also the third, whorl is marked with close-set and curved longitudinal striæ; the first whorl is quite smooth and glossy: *colour* pale yellowish-brown: *spire* gradually tapering to a blunt point: *whorls* 10–12, rounded but compressed; the last equals about one third of the length of the shell; the first is bulbous and like that of the last species: *suture* narrow but distinct: *mouth* as in all the foregoing species: *outer lip* thickish and prickly: *inner lip* filmy: *pillar* flexuous. L. 0·2, B. 0·075.

'Porcupine' Exp. 1870: Atl. St. 27–30, 36; Med. Benzert Road, Rasel Amoush, Adventure Bauk.

This has somewhat the aspect of *Cerithiopsis tubercularis*, but the apex and mouth are those of a typical *Cerithium*.

¹ Like an obelisk.

² Cylindrical.

*Bittium*¹, Leach. Basal notch shallow and not recurved ;
apex regular.

7. *CERITHIUM LACTEUM*, Philippi.

C. lacteum, Phil. Moll. Sic. i. p. 195.

C. algerianum, Sowerby, Thes. Conch. p. 129, f. 230, 231.

'Porcupine' Exp. 1870: Atl. St. Tangier B.; Med. 50, Benzert Road, Rasel Amoush.

Distribution. Cap Breton (*De Folin*)!, Mediterranean and Adriatic, Madeira (*Watson*)!; 29-108 fms.

Fossil. Pliocene: Calabria and Sicily (*Philippi* and *Seguenza*), Madeira (*Mayer*). Post-tertiary: Sicily (*Aradas* and *Brugnone*).

Judging from the description and figure given by De Blainville of his *C. elegans* in the 'Faune Française,' I cannot agree with Weinkauff in regarding it as the present species.

8. *CERITHIUM WATSONI*, Jeffreys. (Plate VI. figs. 6, 6 a.)

C. gemmatum, Watson in Journ. Linn. Soc. (Zool.), vol. xv. p. 113 (1880).

'Porcupine' Exp. 1870: Atl. Vigo B., 13, 16, 17a, Setubal B., 24, 26-34, 36. Abundant.

Distribution. N. Spain ('Travailleur' Exp.), Setubal B. ('Challenger' Exp.), Josephine Bank ('Josephine' Exp.), off Marocco ('Talisman' Exp.); 217-1029 fms.

The animal is yellowish-white, with a faint tinge of brown in front: *snout* small: *tentacles* cylindrical, short: *eyes* seated on bulbous offsets of the tentacles, about one third from their bases: *foot* thick: *operculum* yellowish, circular, and paucispiral, with imbricated edges.

Sculpture variable, the longitudinal ribs sometimes disappearing on the last and next whorl, although the spiral ribs seem to be always present. Apex as in *C. lacteum*.

Not *C. gemmatum* of Hinds, 1844, the type of *Vertagus* of Klein, or *Rhinoclavis* of Swainson, which is a subgenus of *Cerithium* according to Dr. Paul Fischer. I have therefore given the present species the name of my friend the Rev. Robert Boog Watson, who has so admirably worked out the new species of Univalves from the 'Challenger' Expedition.

9. *CERITHIUM RETICULATUM*, Da Costa.

Strombiformis reticulatus, Da C. Brit. Conch. (1778) p. 117, pl. viii. f. 13.

C. reticulatum, B.C. iv. p. 258, pl. iv. f. 4; v. p. 217, pl. lxxx. f. 4.

'Porcupine' Exp. 1869: St. Donegal B. (large specimens), 33. 1870: Atl. Vigo B., 26, 30; Med. Algesiras B., 55, Benzert Road, G. Tunis, Adventure Bank.

¹ This name appears for the first time in Gray's 'List of Genera,' on the traditional or supposed authority of Dr. Leach. It does not occur in Scudder's 'Nomenclator Zoologicus,' 1882.

Distribution. Lofoden I. to Gibraltar, throughout the Mediterranean, Black Sea, Adriatic, Marocco, Canaries, and Azores; 0-140 fms. Inhabits the littoral and laminarian zones.

Fossil. Miocene, Pliocene, and Post-tertiary; throughout Europe, Cos, Rhodes, Cyprus, and Madeira; 0-200 ft.

For this abundant and widely spread species Weinkauff has particularized 17 synonyms; but I must demur to the inclusion of *C. angustissimum* of Forbes, which, according to the type now before me, is a species of *Cerithiopsis*, and the same species which Delle Chiaje described and named as *Cerithium metaxa*. The best known synonym is *Murex scaber* of Olivi, 1792.

It seems to be replaced on the northern coasts of the United States by *C. nigrum* of Totten. The longitudinal ribs or striæ are often varicose; hence Nyst described and figured a variety of the present species as a Crag fossil under the name of *C. variculosum*.

10. CERITHIUM PUSILLUM, Jeffreys.

Turritella? pusilla, Jeffr. in Ann. & Mag. N. H. Febr. 1856, p. 42, f. 10, 11.

'Porcupine' Exp. 1870: Atl. St. C. Sagres, 26, Tangier B.; Med. 50, Rasel Amoush, Adventure Bank.

Distribution. C. Breton (*De Folin*), Mediterranean and Black Sea; 12-120 fms.

Fossil. Miocene: Vienna Basin (*Hörnes*). Pliocene: Monte Mario, Calabria, Sicily, and Rhodes.

C. schwartzi, Hörnes, 1856, and *C. submamillatum*, Rayneval, 1864. Fischer says "non *C. pusillum*, Gould," and that it is anterior to my name; but I described and figured the present species in 1855-56, and Gould described his species in 1862.

The basal groove is so slight and shallow that I at first thought it might be a *Turritella*. Specimens are occasionally varicose.

SIPHONIBRANCHIATA.

Family XXIX. CERITHIOPSIDÆ.

1. TRIFORIS PERVERSA, Linné.

Trochus perversus, L. S. N. p. 1231.

Cerithium perversum, B. C. iv. p. 261; v. p. 217, pl. lxxx. f. 5.

'Porcupine' Exp. 1870: Atl. St. 26, 30, Tangier B.; Med. Algeiras B., 45, Benzert Road, Rasel Amoush, Adventure Bank.

Distribution. Christiansund and Bohuslän to Egypt, Black Sea, and Adriatic, Marocco, Madeira, Canaries, Azores, N. Pacific (*Cooper*, f. *P. Carpenter*); 0-205 fms.

Fossil. Miocene: Mayence and Vienna Basins, Transylvania and Calabria. Pliocene: Red and Coralline Crag, S. France, Italy, Morea, Rhodes, Cyprus, and Madeira. Post-tertiary: Scandinavia and Ireland; 0-120 ft.

I am now inclined to separate *Triforis* from *Cerithium* by reason of the differences in the apex or embryonic part of the shell and in the former having a short basal canal instead of a mere groove or notch. The spire of *Triforis* is finely pointed, in *Cerithium* it is blunt. In *Triforis* the apical whorls are much narrower in proportion, and are closely striated lengthwise. In *Triforis* the canal is small and nearly if not quite closed, as in *Murex*; in *Cerithium* the groove or notch is comparatively large and quite open. According to Meyer and Möbius there is also a characteristic distinction between the animals and odontophores of the two genera. The snout or proboscis in *Triforis* and *Cerithiopsis* is retractile, while in *Cerithium* it is contractile. The radula of *T. perversa* contains about 26 transverse and short denticulated plates. *Triforis* appears to be congeneric with *Cerithiopsis*, and to belong to the same family. When the shells of *T. perversa* and *C. tubercularis* are exhibited one before a mirror and the other not, it will be seen that almost the only differential character consists in the lower or basal portion of the mouth being more closed in the *Triforis* than in the *Cerithiopsis*.

Seguenza and Monterosato regard *T. perversa* and *T. adversa* as distinct species because the former is larger than the latter. I cannot agree to their separation on those grounds, and I am not aware of any other difference. Size seldom if ever constitutes by itself a specific character. Professor Stossich kindly gave me a specimen which is more than an inch long besides the apical whorls, which had disappeared, and another specimen which, although quite perfect, was scarcely a line or the tenth part of an inch in length; both specimens were from the Adriatic. Besides *Murex adversus* of Montagu there are many other synonyms.

Cerithium nigrocinctum of C. B. Adams, from the North-Atlantic coasts of the United States, is closely allied to the present species, if it be not the same or one a variety of the other.

2. TRIFORIS ASPERA¹, Jeffreys. (Plate VI. figs. 7, 7a.)

SHELL elongated, rather solid, nearly opaque and glossy: *sculpture*, rows or bands of small tubercles (18–20 on the last or bottom row), which arise from the mutual intercrossing of longitudinal and spiral striæ; of these rows there are usually three on the last whorl above the periphery, and the same number on several of the succeeding whorls and afterwards two only; each of the apical whorls (3 or 4) is closely striated lengthwise and encircled by two spiral lines; the periphery is defined by a rather strong ridge, a little below which is another ridge, besides a shorter and smaller one at the base; the tubercles which compose the lower two rows are larger and more prominent than those of the uppermost or third row: *colour* pale yellowish, with a faint tinge of brown; apical whorls dark brown: *spire* tapering to a fine point; apex pinched-in and narrower than the rest of the spire: *whorls* 21–22, compressed, gradually enlarging; the last equals only from $\frac{1}{5}$ to $\frac{1}{6}$ of the shell: *suture* slight, indicated by the

¹ Rough.

uppermost spiral row: *mouth* rhomboidal; and all other characters similar to those of *T. perversa*. L. 0·6, B. 0·15.

'Porcupine' Exp. 1870: Atl. St. 16, 24, 27-30; Med. Adventure Bank.

Distribution. Bay of Biscay ('Travailleur' Exp. 1882), Sciacca, Sicily (*Monterosato*), G. Mexico (*Pourtales*); 125-731 fms.

Distinguishable from *T. perversa* by being more slender, and having more prominent tubercles so as to give the shell a rougher aspect. The base is also more square and as if truncated.

A. Typical; apex acuminated.

1. CERITHIOPSIS TUBERCULARIS, Montagu.

Murex tubercularis, Mont. Test. Brit. p. 270.

C. tubercularis, B. C. iv. p. 266, pl. iv. f. 5; v. p. 217, pl. lxxxii. f. 1.

'Lightning' Exp. St. 5.

'Porcupine' Exp. 1870: Atl. 3a, 13, Vigo B.; Med. Adventure Bank (var. *nana*).

Distribution. Christiansund (*Lilljeborg*)! to Alexandria (*Ponsonby*)!, W. Africa ('Talisman' Exp.)!, Madeira (*Watson*)!, Canaries (*McAndrew*)!, Boston Harbour southwards (*C. B. Adams* and others)!, G. Florida (*Dall*), Queen Charlotte's I. (*Whiteaves*); 0-1039 fms.

Hab. Littoral and laminarian zones.

Fossil. Miocene: Vienna Basin, Calabria, and ?Rhodes. Pliocene: Red and Coralline Crag, Belgium, Biot, Italy, and Rhodes. Post-tertiary: Norway, Scotland, Ireland, and ?Rhodes.

Cerithium pygmaeum, Philippi, *Cerithium henkeliusii* (posthac *henkelii*), Nyst, *Cerithiopsis acicula* and *C. minima*, Brusina. Not *Cerithiopsis tuberculata*, P. Carpenter.

I must still retain my opinion that *C. clarkii*, alias *bilineata*, or *coppolæ*, is merely a monstrous or irregular form of the present species. One of my specimens, which has only two rows of tubercles on the lower whorls, has three rows on two of the upper whorls. The lower rows seem to have become squeezed together and elongated. A small and slender variety is *C. acicula* of Brusina, = *Cerithiolum dextrum*, Watson, ex typis. I regard *Cerithiopsis atalaya* of Watson as another variety.

Dr. Tiberi found large and small varieties of *C. tubercularis* living with *Modiolaria marmorata* in the tunic or outer coat of *Ascidia mentula* at Naples. Were the two mollusks commensal or quasi-parasitic, like species of *Eutima* and *Stilifer*?

De Blainville in his 'Faune Française' included not only this species but also *Cerithium reticulatum* and *Triforis perversa* in his *Cerithium tuberculare*.

The apical or top whorls in fresh and perfect specimens, when examined under a microscope, are seen to be very finely and closely ribbed lengthwise. Occasionally specimens have four rows of tubercles on the lower whorls.

2. CERITHIOPSIS DIADEMA (Watson), Monterosato. (Plate VI. figs. 8, 8 a.)

C. diadema (Watson), Monterosato in Journ. de Conch. 1874, p. 273.

'Porcupine' Exp. 1870: Med. St. 45, Benzert Road, Rasel Amoush, Adventure Bank.

Distribution. Cap Breton (*De Folin*), G. Tunis ('Shearwater' Exp.)!, Sicily (*Stefanis* and *Monterosato*)!, Madeira (*Watson*)!, Canaries (*McAndrew*)!, Azores ('Challenger' Exp.)!; 22-500 fms.

Fossil. Post-tertiary: Messina (*Seguenza*).

C. fayalensis, Watson, in Journ. Linn. Soc. (Zool.) vol. xv. p. 125, 1880. I had proposed to name it *C. fibula*¹.

This pretty little shell, which was partly described by Monterosato, differs from *C. tubercularis* in being cylindrical, more elongate, narrow, and slender; its spire is finely tapering; and some of the longitudinal ribs are set obliquely. The uppermost whorl forms a smooth bulb, and the next two whorls are closely and rather obliquely ribbed lengthwise and crossed by a delicate spiral line near the base of each of those whorls, so as to give the apex an angulated appearance.

3. CERITHIOPSIS HORRIDA², Jeffreys. (Plate VI. figs. 9, 9 a.)

SHELL elongated, thick, opaque, and somewhat glossy: *sculpture*, numerous and crowded strong tubercles or nodules, which cover the surface and give it a rugged aspect; there are 4 rows of tubercles on the last whorl, and 3 on each of the upper whorls, except the two uppermost; the first or topmost is bulbous or globular and smooth, and the second is marked lengthwise with several short curved ribs; the base is concave and encircled by a slight ridge: *colour* pale brownish-yellow: *spire* tapering and turreted; apex blunt: *whorls* 15-16, rather flattened or compressed; the last equals about one fourth of the shell: *suture* narrowly channelled and distinct: *mouth* squarish, truncated at its base: *outer lip* thickened: *inner lip* forming a thick fold or deposit on the lower part of the pillar, which is nearly straight: *canal* very short and triangular. L. 0.35, B. 0.075.

'Porcupine' Exp. 1870: Med. St. Rasel Amoush.

Distribution. Sicily (*Monterosato*), Smyrna (*McAndrew*), Madeira (*Watson*); 16-49 fms.

4. CERITHIOPSIS BARLEEI, Jeffreys.

C. barleei, B. C. iv. p. 268; v. p. 217, pl. lxxx. f. 2.

'Porcupine' Exp. 1869: St. 9.

Distribution. British and Irish coasts, Arcachon (*Lafont*)!, Cap Breton (*De Folin*)!, Naples and Sicily (*Tiberi* and others)!; 25-40 fms.

¹ Whether it is the species which Mr. Watson proposed to name *diadema* may be questionable; but it quite agrees with the notice of that species given by Monterosato.

² Rough.

B. *Eumeta*, Mörch. Apex blunt.

5. CERITHIOPSIS METAXÆ, Delle Chiaje.

Murex metaxa, D. Ch. Mem. iii. p. 222, t. xlix. f. 29-31.

C. metaxa, B. C. iv. p. 217; v. p. 217, pl. lxxxi. f. 4.

'Porcupine' Exp. 1870: Atl. St. Vigo B., Tangier B.; Med. 50, Rasel Amoush, Adventure Bank.

Distribution. Shetland to the Land's End, Gulf of Gascony, Mediterranean and Adriatic, Madeira, and Canaries; 7-913 fms.

Fossil. Pliocene: Red and Coralline Crags, Biot, Pisa, Calabria, and Rhodes.

To the list of synonyms given in 'British Conchology' add *Cerithium rugulosum*, Sowerby, *C. subcylindricum*, Brusina, and *C. benoitianum*, Monterosato.

The description and figure of Delle Chiaje are unmistakable. Professor Martens says that the specific name ought to be *metaxæ*. He is right, and I have altered it accordingly.

A specimen from the Bay of Naples, which was obligingly given me by the late General de Stefanis, is almost needle-shaped, being much more slender and narrow than usual; it has only three rows of tubercles on each whorl, the middle row being more prominent than the two others. The first or apical whorl is slightly twisted. Another specimen of the typical form is milk-white.

6. CERITHIOPSIS COSTULATA, Möller.

Turritella? costulata, Möll. Ind. Moll. Grænl. p. 10.

C. costulata, B. C. iv. p. 272; v. p. 217, pl. lxxi. f. 5.

'Lightning' Exp. St. 2, 5.

'Porcupine' Exp. 1869: 4, 23a, 25, Rockall Bank, 65, 89, The Minch.

Distribution. Norway (*McAndrew* and others), Sweden (*Malm*), Shetland (*J. G. J.*), between the Hebrides and Faroes ('Triton' Exp.), Iceland (*Torell*), off C. Farewell ('Bulldog' Exp.), Greenland (*Möller*), G. St. Lawrence (*Whiteaves*), B. Fundy (*Verrill*); 82-1622 fms.

Fossil. Post-tertiary (*J. G. J.* and *Thorburn*), Wick (*Peach*), Co. Antrim (*Hyndman*, *Waller*, and *J. G. J.*); 60 feet to 25 fathoms.

Cerithium arcticum, Mörch, *Cerithiopsis nivea*, Jeffr., and *Cerithium naiadis*, Woodward.

7. CERITHIOPSIS TRILINEATA, Philippi.

Cerithium trilineatum, Phil. Moll. Sic. i. p. 195, t. xi. f. 13 (1836).

'Porcupine' Exp. 1870: Atl. St. 30 (young).

Distribution. Throughout the Mediterranean, and the north-eastern coasts of the United States of America; below low-water mark to 20 fathoms.

Fossil. Miocene: North-west Germany, Vienna Basin and North America (*Otto Meyer*). Pliocene: Red and Coralline Crags, Italy, Rhodes, and Madeira.

Having myself seen this remarkable species dredged off Martha's Vineyard on the New-England coast, and carefully compared it with the Mediterranean and fossil species, I cannot find the slightest difference between any of the specimens. It is the *Cerithium terebrale* of C. B. Adams, Bost. Journ. N. H. iii. pl. 3. f. 7 (1841). The occurrence of this European species not merely on the coasts of North America but also in the Miocene formation of both countries is remarkable.

The last whorl has a basal ridge or keel, besides a thread-like line below it and encircling the pillar. The apex consists of two or three smooth and glossy whorls ending in a globular point. There is the same very short canal as in *Cerithiopsis*; but the pillar is longer, more flexuous, and recurved at its base as in the typical species of *Cerithium*.

I have a fragment of a *Cerithiopsis* or *Cerithium* from Station 16 of the 'Porcupine' Expedition of 1870, which is worthy of notice. Each whorl has curved longitudinal ribs, which are crossed by two thread-like spiral striæ. It is figured in Plate VI. fig. 10 for future identification, and may be called *bizonalis* or *bizonale*.

SUMMARY OF THE FOREGOING MOLLUSCA.

Families.	Genera.	No. of species.
XIX. IANTHINIDÆ	IANTHINA	2
XX. NATICIDÆ	NATICA	21
XXI. NERITIDÆ	NERITINA	1
XXII. SOLARIIDÆ	SOLARIUM	4
	ADEORBIS	4
	FOSSARUS	1
	SEGUENZIA	6
XXIII. XENOPHORIDÆ	XENOPHORA	1
XXIV. VELUTINIDÆ	LAMELLARIA	2
XXV. CAPULIDÆ	CAPULUS	1
XXVI. CANCELLARIIDÆ	TORELLIA	2
	TRICHOTROPIS	3
	CANCELLARIA	4
XXVII. APORRHAIIDÆ	APORRHAÏS	2
XXVIII. CERITHIIDÆ	STILUS	1
	LÆOCOCHLIS	1
	CERITHIUM	10
XXIX. CERITHIOPSIDÆ	TRIFORIS	2
	CERITHIOPSIS	7
	Total	75

EXPLANATION OF THE PLATES.

PLATE IV.

Fig. 1, 1a. *Natica notabilis*, p. 31.
 2, 2a. — *subplicata*, p. 32.
 3. — *angulata*, p. 32.
 4, 4a. — *globosa*, p. 33.
 5, 5a. — *compacta*, p. 33.

Fig. 6, 6a. *Natica obtusa*, p. 33.
 7, 7a. — *operculata*, p. 34.
 8, 8a. *Adcorbis depressus*, p. 41.
 9. *Fossarus reticulatus*, p. 41.

PLATE V.

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| <p>Fig. 1, 1a. <i>Sequenzia elegans</i>, p. 42.
 2. — <i>tricarinata</i>, p. 43.
 3, 3a. — <i>carinata</i>, p. 43.
 4, 4a. — <i>laxa</i>, p. 44.</p> | <p>Fig. 5-5b. <i>Lamellaria tenuis</i>, p. 45.
 6, 6a. <i>Torellia delicata</i>, var., p. 47.
 7, 7a. <i>Trichotropis fimbriata</i>, p. 48.
 8, 8a. — <i>densistriata</i>, p. 48.</p> |
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PLATE VI.

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| <p>Fig. 1-1b. <i>Stilus insignis</i>, p. 52.
 2, 2a. <i>Cerithium procerum</i>, p. 53.
 3, 3a. — <i>gracile</i>, p. 54.
 4, 4a. — <i>obeliscoides</i>, p. 55.
 5, 5a. — <i>cylindratum</i>, p. 55.</p> | <p>Fig. 6, 6a. <i>Cerithium watsoni</i>, p. 56.
 7, 7a. <i>Triforis aspera</i>, p. 58.
 8, 8a. <i>Cerithiopsis diadema</i>, p. 60.
 9, 9a. — <i>horrida</i>, p. 60.
 10. — ? <i>bizonalis</i>, p. 62.</p> |
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February 3, 1885.

Prof. Flower, LL.D., F.R.S., President, in the Chair.

The Secretary exhibited a specimen of a rare South-American Lizard (*Heterodactylus imbricatus*), presented to the Society by Mr. G. Leunon Hunt, of 16 Hanover Square, late H.B.M. Consul at Rio, which had been obtained in the Montequeira Mountains near Rio; and read the following observations on it which had been kindly communicated to him by Mr. G. A. Boulenger, F.Z.S., of the Zoological Department, British Museum:—

“The handsome specimen obtained by Mr. Hunt belongs undoubtedly to Spix’s *Heterodactylus imbricatus*. It is interesting, first as being larger than any specimen hitherto noticed, its length being 460 millim., in which the tail enters for 350 millim. Secondly, it possesses an elongate interparietal shield, which is in contact with the frontal anteriorly and with the first pair of occipitals posteriorly, a character which has been regarded as peculiar to the second species of the genus, *H. lundii*, Reinh. & Lütke. In the other specimens of *H. imbricatus* hitherto noticed, the interparietal is either altogether absent, or very short and enclosed between the parietals and the anterior occipitals. The specimen is a male, and shows on each side two præanal pores, on the right leg four femoral pores, and five on the left. The coloration of the upper parts is very obscure, the light lateral band characteristic of the species being hardly traceable.”

The Secretary exhibited the type-specimen of a beetle of the family Buprestidæ remarkable for its large size, which had lately been described by Mr. Charles O. Waterhouse, of the British Museum (Ann. Mag. N. H. ser. 5, vol. xiv. p. 429), as *Julodis ffinchi*.

The specimen in question had been transmitted to the Society by Mr. B. F. Ffinch, of the Persian-Gulf Telegraph Service, Karachi,